

Vol. 14

SEPTEMBER, 1943

No. 3

DEC 7 '43

CHILD DEVELOPMENT



Editorial Board

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E. V. McCOLLUM

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PUBLISHED QUARTERLY BY THE SOCIETY FOR RESEARCH IN CHILD DEVELOPMENT

NATIONAL RESEARCH COUNCIL

2101 CONSTITUTION AVENUE

WASHINGTON, D. C.

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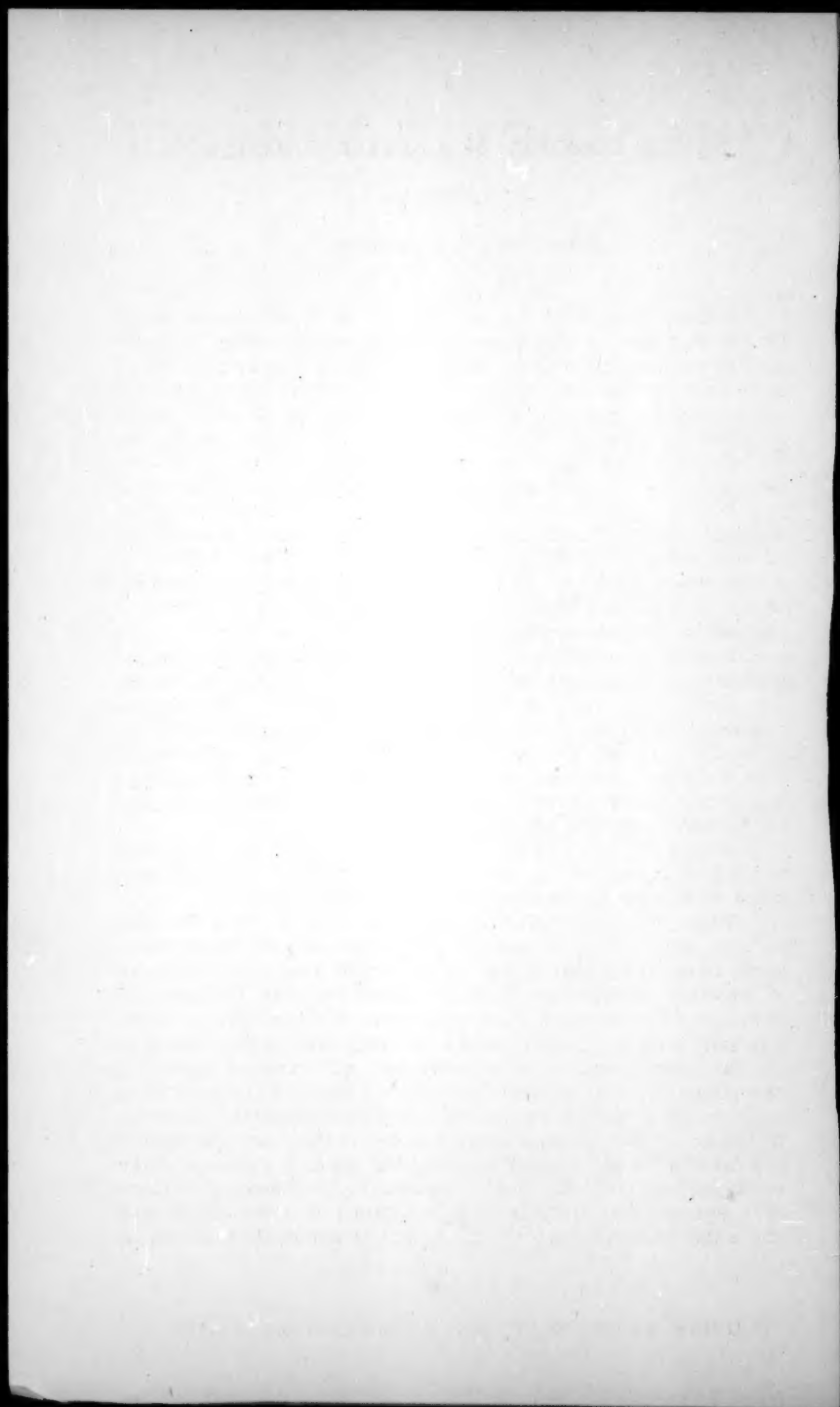
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IN THE DIRECTION OF A BETTER HUMANITY

LEON NORDAU

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Much earlier than we may suppose, it is possible to detect by the behavior of the infant, signs of temperament, of detrimental emotional trends as temper, timidity, negativism, and so forth, that when known give a definite basis upon which one may work understandingly. However, parents fail to give enough attention to their children, that is, understanding attention, for the simple reason that they have too little to give. They only have children and then confine their attention, so far as it goes, to satisfying physical needs. Here, the average development of parental capacity ends and with it the proper understanding of their offspring. So most children are born into neglect of which their creators, so to speak, are entirely unconscious though this unintentionally begets fresh varieties of ignorance in place of the old instead of propagating better states of life and living. Reproduction becomes, in consequence, a thing of habitual ignorance; not an escape from it in the direction of a better humanity.

Until such time as the bond of emotional gratification becomes transformed into adequate understanding, the child who is keenly affected by adverse stimuli of the home environment will show its reactions according to the most easily affected tendencies of its nature. Very often it is not taken at all into consideration that the infant is being periodically or continuously exposed to direct or indirect forms of tension and irritation which both father and mother neglect to examine, be these tensions vociferous in character or of a brooding kind.

Often, when the infant cries, it is left to itself because parents do not want to humour its mood in the oft-times erroneous impression that it has acquired the habit of so doing out of previous indulgence. It is erroneous because children, as grownups, are more or less responsive to their surroundings. A sensitive child - and it should be remembered that children are far more sensitive than grownups - will respond acutely to everything about it though it may not understand or be able to make known to the parent the nature of that by which it is being affected. As the grownup is able to detect the emotional import of a foreign tongue without knowing the specific meaning of the words he hears, so the child responds to harshness or tenderness, sympathy or indifference, confidence or undue alarm, and where there is occasion for protest, will demonstrate resentment

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according to the intensity of its impression of the forces immediately about it. And if it is of an extremely nervous nature, it will accordingly register a violent protest.

Quarrels between parents have a definite effect upon the child's nervous system as have dissensions in general, whether between father and mother, older children, or even of close-dwelling neighbors. So, before deciding to leave a child to its own devices whenever a condition of strain is demonstrated, it would be more helpful to investigate the probable causes so that the real reason, once found, could guide us towards right adjustment which is often of tremendous scope because embracing many people and interlocked events. Then, with clearer perception of what is needed for solution, we might more thoughtfully proceed instead of always complaining about difficulties or giving vent to hysterical outbursts of which abnormalities there is far greater cause for alarm than that provoked by a child's unalloyed expressions, so often ruined by ridicule, rebuke, or over-anxiety for professional guidance-prescriptions lest he be in retard of the rest of humanity.

So far as the rearing of the infant is concerned, it is the fixed idea of normality that constitutes a most common preconceived assumption. What is rather needed is a first-hand individual study, not of majority behavior in contrast to minority behavior, but focussed upon the attempt to know this child without stereotyped comparisons of behavior correspondences as leads. Comparisons, whether psychological or physiological, should be used only in time of emergency, that is, when a most difficult problem arises, one demanding immediate attention whereupon the specialist should be consulted.

Thus, were the child, according to knowledge based upon developmental tables, to fail to show usual aptitude in walking, speaking, seeing, and so forth, medical consultation should be sought and, should it then be found organically sound, there is no need to worry that the child will not later catch up with any belatedness - unless parents, in their exaggerated concern, shock the child into developing nervous complications which can lead to organic impediments.

Of course there are innumerable instances where doctors fail to discover the physiological correlates of a disturbance manifested in behavior but such problems could be greatly reduced in number were the corrective of closer understanding applied with greater interest to infancy.

If we want to succeed in eliciting the best that is possible in a child, we must not do so with preconceived ideas, in particular, of creating for him a destiny which, we feel, will redound to our credit. If we do so, we shall never understand

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the child and thereby bring unnecessary disappointment to ourselves because in building such dreams about him, we are merely occupied with egotistic visionings so that instead of helping the life which has come into our charge, we thwart the finest of which he might become capable had he received the utmost of our understanding instead of being made the willy-nilly hero of our wilful dreams which, at least in the beginning, are not his. It were better for children were parents not to give their dreams of grandeur blind vent but, through the effort leading to awakening and awareness, sought for the object of their love, the child, to seek the closest acquaintance with it and, through that, gain understanding of its tendencies. It is these which are the parent's most dependable guide to the right treatment to be given. For if the child is to grow well, not only in body but in mind, he must be given the opportunity to eventually develop by himself those tendencies which will be most useful in mastering all the weakening inclinations which even my child possesses although I have invested his fate with that of the imaginary leader of the country of my dreams in which he will always rule. Try, instead, to see him in a realistic world, in a world in which he is to learn a great lesson and where everything tries to reveal some truth; where there is, as yet, suffering and disease, the selfishnesses of sex, jealousy, and hatred; where there is also kindness, profundity of love in which not merely the personal but all things have an interest, a meaning, and a purpose to be regarded and reflected upon without fear or discrimination because to the living it is a world in which nothing is dead. So that if the child is to gain by everything it does and will do and of which social or economic station is not the criterion of success, it must be brought up in a living world.

There is much controversy as to the criterion of success. It is the expression and action of the mind which makes growth the highest aim of living. There is nothing bombastic about this mind for in all it does it is searching, loving, caring, ever striving to free others from darkness and misery which, from its own experience, it knows is the most worthwhile of accomplishments. It also knows that gracious living is obtained by what we are; never by what we own.

Parents should never be too anxious, too impatient for results concerning the aptitudes of their children. Clever children are seldom the most intelligent and the so-called backward child will be found not wanting even if he does not display an acceleration equal to what is now considered normal. The genuine teacher seeks to know the child through observation and reflection upon his observation. How else could he teach it? And to try to teach someone of whom there is no knowledge can

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only defer real teaching.

This applies to the parents who have given birth to the infant and who become its first guides. If they are not teachers of understanding but only crude guides they will, though unwittingly, guide their child wrongly and, it is most likely, develop in him the poorest type of mind which can but lead to the complications of an ordinary existence where, despite material hoardings, only tuttleless care companions.

With observation which is not through books but relies upon first-hand evidence and sufficiently sensitive reflection upon such evidence, we will find that the consciousness of the infant is not limited to the point where it can only express through physical signs what it will later express orally, through locomotion, and other communicatory means. Which is to say, the infant, as the adult, has a mental and an emotional world; the difference being that the infant has yet to learn how to translate its workings into terms understandable by the poorly observant who include those who have become too complex, too complicated to understand a being which is not just inarticulate and stupid but vibrant with life. Only by watching it as it unfolds may the mental life of this being be intelligently guided. But there is the impression that at the early stage with which we are here concerned, there is no life with which to work but only involuntary reflex adjustment of greater or lesser intricacy. However, this impression only carries weight because of the fact that the subjective operations of the infant's mind lie withdrawn from our view. Until our restricted consciousness broadens, the workings of the other must remain withdrawn to that which is worlds apart.

We are equally in error if we suppose that the mind is fully grown in the infant and that all it needs to do is to learn how to express its wants in word and deed. But it does have the definite capacity to think and feel, which it uses in its own world of free movement although seeing no reason for expressing thought and feeling as do we. So that while it has no crystallized ideas for survival, this does not mean that it is devoid of the instinct to prolong its existence. And since what we so often confuse with reasoning on our parts is but the expression of instinct, we may say that the infant does not "reason" that in order to continue living it must acquire additional psychological faculties that will enable it to fulfil this to it as yet nebulous purpose.

As struggle is paramount in the life of the adult, so we find manifestations of struggle in the infant as its mind becomes aware of its mental and biological responsibilities. At first, there is little awareness of its surroundings, it being oblivious in consciousness to the body which becomes the earliest environ-

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ment of the human mind and from which follows awareness of the environments wherein the body finds itself.

The infant's earliest exploratory movements are then performed without those motivations which operate in the complicated consciousness of the adult, for what it does, we shall find, is done as play. That is, its consciousness has not the calculated significance of the adult in that present satisfactions are sought for their own sake and for no ulterior motive to be satisfied at a future date. Hence, it is natural for it to grasp at an object that is being taken away but only because the free play of what it is doing is thereby artificially interrupted. However, it does not see this at first as losing a property but rather as an outside interference disrupting the rhythm in which it finds satisfaction. While it will lay down an object when interest in it momentarily ceases, when forcibly taken away, it becomes conscious of a break in a train of events of interest to its consciousness just as if it were to take a deep breath and have that interrupted before completion which, it is obvious, would be in the nature of a shock.

When we teach the child the possession of things as, for instance, by giving it a property while saying: "This is your ring. You mustn't lose it. Remember now, don't lose it or you'll be spanked," its ego will rapidly grow in the direction of possessorship which will apply not only to a ring or to toys, but to everything in its life environment of the future. The use of toys and trinkets helps then to induce an early sense of exclusive ownership - an egotistic emphasis upon mine and thine of catastrophic consequence for its future.

To avert this, educational means should take the place of toys which are merely means for diversion so that the child will least annoy by being kept busy with anything. As yet, it is still considered a nuisance which is why toys, including "educational" toys as they are called, are so popular with the average parent who resorts to them as the most effortless solution to its demands for attention. Doubtlessly, the erroneous impression that they are contributing to the intelligence of the child, besides preparing for future academic adjustment, also enters to lend excuse to their excessive popularity. But while it may be that blocks will acquaint the child with the alphabet, arrange them as he may, they will never teach him the fundamentals of considered behavior.

Even if he has not learned the alphabet at home, it will not be to his detriment since he may master it at any time easily enough. But he will spend the rest of his life never knowing the satisfactions of thoughtfulness, the value of which his parents have helped him to forego learning.

The necessity for toys may be obviated by helping the child

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to attain skill in everything he can do about the house at the earliest possible occasion. Here, much can be done which is instructive, practical, and useful and which should not be considered by parents as being beneath the child's dignity. The purpose of such skill is above all educational since it is designed to make the child self-sufficient in every possible respect; not only as regards the outward skill but particularly in connection with the degree of voluntary effort put forth.

Then, there is the out-of-doors, not only of fields and woods, but of the yard, the street, and the town, each of which offers an abundance of opportunities to further the natural appreciation for all things. Appreciation is care and heart-felt respect; not cold regard accompanied by indifference, rowdiness, or fear which, if once instilled in the child, are transcended with difficulty, if at all, in the absence of the advantages given by a fine mind.

There is also the family relationship of the home, the approach to which may produce either sincere communion or subservience to artificial amenities wherein disregard takes the form of voiceless or fretful quarrelings.

Not by playing with things but by becoming part of them do we arrive at communion which is no other than the realization of kinship that finds expression in the sharing of one's self. But recourse to the bit of trumpery does not help to develop the mind, the character, the sensibility of heart of the child, but only the inclination to look upon everything as a toy and the tendency to treat it as such not only as child but as grownup. If, therefore, we do not give it any toys during the short period of infancy, that is, prior to walking, it will not die of ennui since it has a play of mind and lives in a world of its own where physical action, other than that arising out of its bodily functionings, is not necessary. This being so, it can never lose if it does not receive those toys that are now deemed so indispensable to its maturing.

There is enough to develop its mental, sensory, and motor apparatus in the exercise of its necessary functions. Thus, in feeding it grows in the use of the hand, employing fingers and thumb wherewith to grasp the breast of its mother, learning gradually to use them less and less clumsily. Following the period of breast feeding, the growth of its behavior will naturally continue in the actions of bottle feeding, acts of elimination, sitting, standing, crawling, walking, and so forth. Through these, it improves in the surer use of its hands, control over its musculature, the more accurate gauging of visual stimuli, and so on.

When the child is unnaturally restless, instead of turning to

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toys as an escape, let the mother sing to it or play some soothing music provided she does not confuse restful harmonies with cacophonous "melodies" of the moment. Then, she can carry it in her arms or play with it on some spacious, soft surface but not teasing it for this is very different from play, the one merely causing excitement, a possible seed of later hysteria; the other, guided by understanding, producing a soothing, tender relation between mother and child which is truly educative.

A spanking does not mean a flogging nor, out of resentment, to give the child a whacking blow. It is rather a touching which has the nature of a thinking contact (because it has a thinking content), and is therefore never motivated by an emotional outburst on the part of the mother who knows that her child, being a sensitive instrument, will register the unseen quality of any contact. It is better not to touch the child at all in way of punishment if parents lack the understanding necessarily going with such treatment which, at best, is actually a form of guidance. Furthermore, it is also better not to teach it anything than to teach it wrongly for then it will always be difficult for it to undo the effects of the first vivid impressions so as to start afresh. Whereas, if it has been taught nothing, it will only have to start and will certainly not be the loser by having had to wait a little longer.

The progress of the child will therefore be much more thorough if his education proceeds without hurry, for what real benefit can there be in hustling him off into learning things before he is given the opportunity to cultivate some kinship with his mental and physical self? Let him first behold his surroundings through feeling, a natural condition with the child which, when it is not disrupted by the anxiety of impatient parents who look upon obvious signs of hability (*habit-ability*) as sure demonstrations of intelligence, grows into thinking which helps him to become his own inward and outward observer. He will then be able to consult himself with all sincerity of heart and mind in everything he does and so learn to enrich his life with creative action instead of idling it away in the search for a visionary happiness and security contained in the absurd promises held out by educators who prescribe everything but encourage no natural growth through their allegiance to dogmatic tenets and customs. In this way, the error of learning by copying continues to hold an unrelinquishing grip upon the mind which is trained to know things but not to know itself and must therefore remain unresponsive to its creatively thinking self.

What is sadly lacking in the educational care of the child from early upbringing to later public or private instruction is the realization that if he is to grow up genuinely strong, his

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mind must become self-governing. If it is to think independently of old truths - which is not to disregard them - we cannot heap upon it artificial means of training which may well be regarded as no more than figments of a commercial genius that has invented innumerable tricks to be used in conventional instruction. These are but fly-catchers from the self-diverting child's toy to the chilling prescriptions of instruction and allied testing.

First help the child's mind to sing in unity; then you may safely build upon this unity, but not by beginning to indulge it in toys. That, you may be sure, will not increase his strength but add power to the seed of ego in him which will all too soon make itself felt and heard. He will thank you with understanding later on when you have succeeded in helping him to become a thoughtful caretaker of things which he cannot become when you guide him, even though inadvertently, into habits of meditating upon possession that eventually comes to roost, with its attending incubuses of envy, hate, and greed, upon the finite sense of mine which, more than often, has an uncanny tendency to include what belongs to others.

This does not mean that later the child may not enjoy the use of bicycle, roller skates, and other recreative contrivances, provided they are used for recreation and without stress upon the physical at the expense of the intellect. Although bodily care should not be neglected in the interest of the mind, it should be seriously remembered that a misshapen mind is far more tragic than a misshapen body.

The girl, too, depending upon the natural processes of maturation which make it possible for her "to do for herself," may also have the use of doll, carriage and other objects of interest so long as they are employed for practical purposes, that is, as a preliminary to actual child care which, it is certain, will do her no harm to know. Nor is there any reason why a boy child - the future intelligent father - should be denied the benefit of some knowledge, similarly derived, concerning the needs of the baby. This is not intended to encourage thoughtless breeding but, on the contrary, to take away the savage strain of thoughtlessness which too often predominates in later marital relationships as well as in the unnatural coarseness or morbid shame so characteristic of average adolescence, these conditions definitely confirming one of the gross carelessnesses with which the child's mind has been tended.

There is no time set aside in schools, of whatever level, for instructors to initiate tomorrow's parents into knowledge which would help them to transcend jocularity as a cover for shamed embarrassment, because an informing knowledge of

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sex with all its wholesome functions - and this must go beyond the limits of the physiological structures involved to include the psychological elements - has always been left hidden, with the result that later this ignorance produces not only an unnatural shame but an attitude of blind possessors toward the object of desire.

There are men and women, not professional prostitutes, who walk stealthily along the street, fearful of being detected, indulging and then running away. Had they been given the benefit of healthy knowledge, they would understand the nature of their sexual desires and would no longer be compelled to act as thieves.

If sex were elevated to the level where it is no longer falsely hidden, there would be no occasion for being morbid about it and, not only that, there would eventually be the cessation of the irrational desire for it created by the fact that it is kept an irrationally covert subject. The secrecy of sex is one of the crimes of modern education. It makes for boldness of sex, for the deteriorations of promiscuity and innumerable forms of obsessions. None of these, although they may not take overt forms of expression, is really harmless. They all interfere, to a degree, with man's sane mental and physical behavior.

In building an edifice, the superstructure cannot be erected before the foundation has been properly laid. The site where the edifice is to stand presents the potential foundation so that it is here that the expert engineer surveys the ground to find out what is needed for the task. This done, the actual preparation of the foundation is performed step by step until it is ready to receive the superstructure. All this is done by the good builder with great care long before it stands ready to weather the tests of the elements.

In rearing the child at home and, later, in teaching, the foundation of mind is taken for granted. We do not begin by preparing to blend its functions into one harmonious unity of reflective concentration. We say: "The mind is there. Now let us see: we shall soon know what kind of a mind it is that we're dealing with by how efficiently it carries the things we place upon it." In this way, whether we be parents or educators, we erect our edifice upon an ill-considered foundation, judging the quality of mind by its storage space and not by deep-seated potentialities of reason which elude our interest. Working as we do under the misapprehension that the methods and materials used in building the structure will simultaneously prepare the solid foundation, we build precariously.

To erect a genuinely serviceable mind, we must not, out of false economy, fail to prepare as serviceable a foundation;

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otherwise everything will surely not stand the tests with which it is going to be tried.

Though mind in itself is harmonious, the instruments of mind which are its receptors cannot conserve what is received if this be not studied in calm without which clear thinking becomes infinitesimal in scope and leads to dullness of thinking. The dull mind is also the fidgety mind which, like a blind hare upon a leash, jumps hither and thither while getting all tangled up in it.

Truth and the truth of anything is never obscure for it is rather the obscurity of our minds which obscures comprehension. As we learn to practice reflection, our obscurity is lessened, though not all at once, and then what we think is thought about with increased plainness and leads to understanding action which is the inevitable fulfilment of thought. Whereupon that which went unperceived, made perceptible through experience, becomes the credible real.

Only fatuous minds give way to worship of precedents, reputation, and place. Whatever it is that they learn, they labor to achieve without thirst for learning. Stressing as they do quantitative knowledge and mechanical skills in the interests of personal ambition, they never cultivate understanding, being too busy forging tools of knowledge which they misapply, and so make men unequal through contention. So more knowledge in them makes only for more sorrow. But while there is no real advantage in brooding over our remissness here, one should never underestimate their mounting strength over us through lack of reflection upon what they do to our lives.

Were there an education of thought, that is, an education furthering the increase of qualitative thinking not in addition to but providing the foundation for any superimposed knowledge of facts, social programs such as prohibiting now one mode of behavior, now educating another, would become entirely superfluous. It stands to reason that minds which have not been trained to become copying apparatuses will, by themselves, prevent undesirable conditions from arising or seek a solution to existing problems for themselves and for humankind. This would mean that desirable conditions would not only be established but be prevented from undergoing degradation though not through habit or tradition which are inimical to the creatively exploring consciousness. As it is now, the majority never heed warnings until conditions make it impossible for them to continue their rote existences, and then only with a purely traditional self-concern.

The axiom upon which education should rest is that of benefitting the child by helping him to identify the workings of

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his mind with himself through introspection and without so many verbalisms on the part of parent or instructor in order that the actions of the child may gradually cease to be controlled by egocentric vagaries through an ever-widening scope of self-insight. When the mind gains a certain cognizance of itself through personal though not narrowly self-centered interestedness, the more consciously it functions and the more directly conscious the mind is of what it does, the more is its scope of discernment increased in action.

As the mind begins to know itself and hence gains in real strength, it is able to diminish the craving for pleasure while pain, its counterpart, simultaneously atrophies, this marking the beginning of freedom from the perpetuation of these two contrasting sensations of which it is not possible to have the choice of one without the succeeding appearance of the other. The average notion of pleasure is that it is an enjoyment unalloyed with tension, aggravation, or care, although this quality of pleasure may be identified with selfish satisfaction which lasts only so long as that which produces the pleasure endures - which is never long enough.

It is then exclusively for self-indulgent ends that happiness is sought by the ordinary mind though this it can never, so long as it remains ordinary, admit to itself or to another. For example, I may think that I seek happiness for the sake of another person I love, whereas in reality I do so mainly because I seek it for myself, for once that person leaves me to be with another, my intense feelings of devotion undergo a definite change. Upon reflection, it becomes evident that I sought to give happiness to the other only that my own seeking for happiness might be gratified and that whatever I did for the other was mainly for myself.

But there is a happiness that is not related to self-indulgence, being rather thwarted by any weakness of mind, and whose quality is that it seeks to enrich others by helping them to grow in understanding, to make the mind and heart forever young through the ever-increasing inflow of energy, to widen the banks of the riverbed of that energy which is themselves that they may share of themselves for the good of all who would quench their thirst upon that universal flood of which there can be no exclusive possession.

It is understood that most children are unaccustomed to an education having this aim which is precisely why the guidance of teachers who will faithfully keep the child from following channels of imitative conduct is of inestimable importance. This they do by assisting him to reflect upon his own behavior instead of rushing him to quick conclusions in order to prove

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that they have accomplished something when all they have done is to further bend the child's leanings to the side of imitative acquiescence.

If the child does not grow closer to himself, he will never know his nature intimately (for this learning will be too intricate for him to approach, far less to understand), and at last wear himself out through one diversion or another to escape disturbance occasioned by this lack of understanding from which throughout life he has been systematically estranged.

While no one will deny the sincerity of the interest which continues to be voiced in progressive living and its reflection in education, it should also be admitted that though many changes have taken place in the curriculum and methods of presentation of subject matter, no direct attempt has been made to break down the error existing in the bookish, routine-preparation of the instructor which causes him to rely upon words, upon the latest, most up-to-date literature which, he prides himself, is his most dependable source for the acquisition of further information.

But this sort of training gives the average instructor of any grade, including the kindergarten, little understanding of teaching though he may amass a great quantity of cold knowledge presented by him in the same conventional spirit to his pupils, although this is far from the giving of himself which a teacher must be able to do if he is to earn the close confidence and trust of those in his care and without which teaching deteriorates to a chore.

Is it not for want of personal development that he can only give of his work and not of himself and which is not so much the fault of those who become, technically speaking, teachers as it is that of the established standards upheld by all those who are directly and actively connected with the organization of education and who oversee the pattern of teaching? So that were the standards to find improvement, were they not only to put stress upon technical achievements on the part of the teacher-candidate, not everyone with the mere ambition to become a certificated instructor would find his place in the classroom and especially not in the kindergarten, that department of the school where only the finest minds should be at work preparing the newly launched human vessels to pilot themselves from the harbor out to sea.

Progressive living begins with the growth of mind and that not later than at the beginning of formal schooling which should continue what the progressive parent has accomplished instead of undoing what has been done. In the event that the mind has not already received such help from the parent - which happens

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rarely to be the case - the earliest time to give the mind this start is then the school. But if we begin with imitative methods which give but the habit of thinking and doing as the physical eye sees with all its attending limitations so far as meaning is concerned, the human vessel will rot in the harbor.

To avoid such wastage of human material, the teacher¹ who would supervise the emancipation of mind in the kindergarten and upwards must have at least these two essential qualities: impersonal human understanding and profound feeling which is not to be confused with romantic sentimentalism. He cannot therefore be merely a product of perfunctory learning with degrees attesting to professional qualifications in the pursuit of which these qualities have been, as is so often the case, obliterated. All qualifications are dependent upon the development of the qualities present in a person's nature and are therefore derivatory. So that it becomes evident that the two essentials are qualities, not qualifications which are now erroneously placed above all fundamental values.

¹Nordau, Leon: *To Know the Teacher*. *Harvard Educational Review*, May, 1943.



GAIN IN WEIGHT DURING PREGNANCY¹

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Since the initial study by Gassner (3) in 1862 of weight gain during pregnancy, a voluminous literature has accumulated on the subject. Recognition, during the last quarter century, that excessive gain is frequently the forerunner and concomitant of pre-eclamptic or eclamptic toxemia has further stimulated recent investigations.

It is not the purpose of this article to review the literature, which has been adequately done, but simply to report briefly our experience with 484 private patients, who were carefully followed by the three physicians listed above, and their results punched, analyzed, and arranged by the first author.

All the patients were white and had single foetuses born alive within thirty days of the expected date of confinement, as calculated from the menses. All the women were well situated economically. Each was weighed every three weeks during the first thirty-two weeks of pregnancy and every two weeks or oftener, in the last eight weeks. There was an average of ten weighings per patient.

Individual advice was given about the proper diet during pregnancy at the time of the initial visit. Women whose weights were normal for their heights were cautioned to eat very moderately of carbohydrates and fats; those who were underweight were advised to eat normally of such foodstuffs; and those overweight were urged to avoid the fattening substances.

The series of 484 patients had an unusual preponderance of primiparas (62 per cent, in contrast to 39 per cent of the white women delivering live births in the United States during 1938) and the average age was slightly greater than that for all

¹This paper is part of a more extensive study made with the cooperation of the Child Hygiene Studies Section of the Division of Public Health Methods, National Institute of Health, U. S. Public Health Service.

²The authors wish to extend grateful acknowledgment to Dr. Jacob Yerushalmy, of the U. S. Public Health Service, for invaluable assistance in the analysis of the material and presentation of this report.

TABLE 1
PERCENTAGE DISTRIBUTION OF MOTHERS BY AGE AND NUMBER OF CHILD;
WHITE LIVEBIRTHS IN THE UNITED STATES, 1938, AND
IN THE PRESENT STUDY

Age of mother	Number of child					
	Total		First		Second or over	
	U.S., 1938	Present Study	U.S., 1938	Present Study	U.S., 1938	Present Study
Total	100.0	100.0	100.0	100.0	100.0	100.0
Under 15	**	0.0	0.2	0.0	**	0.0
15 - 19	11.7	1.3	24.4	2.0	3.7	0.0
20 - 24	31.7	22.5	42.0	29.4	25.2	11.2
25 - 29	27.5	45.3	22.9	46.3	30.4	43.6
30 - 34	17.0	22.1	8.1	16.0	22.6	32.4
35 - 39	8.9	8.6	2.1	6.3	13.2	12.3
40 - 44	2.9	0.2	0.3	0.0	4.5	0.5
45 and over	0.3	0.0	**	0.0	0.4	0.0
Number of cases†	1,935,534	479	748,798	300	1,184,853	179
Average age	27.0	28.2	23.6	27.3	29.1	29.9
						1,883
						--

* Number of child was reported for all cases in present study.

** Less than .1 per cent.

† The cases, for which age of mother was not reported, have been excluded

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childbearing women of the United States (28.2 years vs. 27.0 years). (Table 1).

RESULTS

The average weight gain from the usual weight of the 484 cases during each lunar month is depicted in Figure 1 and Table 2. During the first trimester, the gain was negligible but beginning with the second trimester, the cumulative gain could almost be described by a straight line. In the month prior to delivery, a slowing up in the rate of gain was noted. The total average weight gain was 24.3 pounds, which agrees almost exactly with the reports by other American authors,³ the chief exception being the study of Stander and Pastore (9) who found a gain of 30.7 pounds from the sixth week of gestation.

FIGURE 1—AVERAGE CHANGE IN WEIGHT DURING PREGNANCY MEASURED FROM THE "USUAL" WEIGHT OF THE MOTHER

Change in weight
(in lbs.)

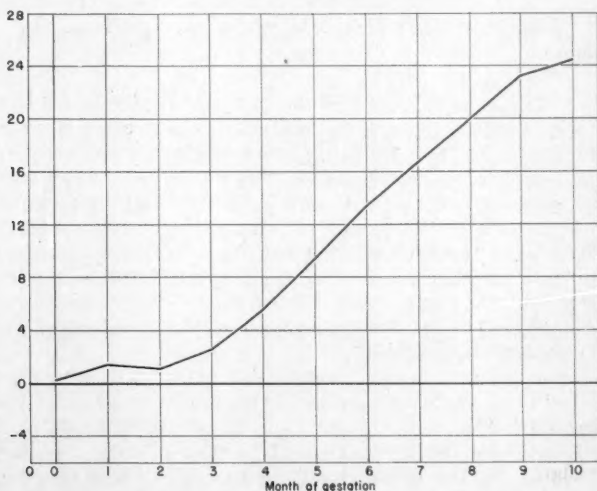


Figure 1

³Cummings (2) reported a total weight gain of 24.08 pounds; Bray (1), 23.7 pounds; Randall (6), 23.2 pounds; and Granger (4), 20-25 pounds.

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TABLE 2

AVERAGE GAIN IN WEIGHT* DURING PREGNANCY

Month of gestation (in lunar months)	Cumulative average weight gain (in pounds)	Number of cases
0 - 1	0.2	4
1 - 2	1.4	90
2 - 3	1.1	266
3 - 4	2.5	335
4 - 5	5.5	373
5 - 6	9.4	410
6 - 7	13.4	430
7 - 8	16.6	450
8 - 9	20.0	469
9 - 10	23.2	452
10 to delivery	24.3	179

* Weight gain was measured from the "usual weight" of the mother.

The weight used for the 484 cases from which to compute total weight gain, was the patient's usual non-pregnant weight, as stated by her. To rule out a possible inaccuracy from relying on the stated weight, in 299 cases who were weighed an average of twelve times, we used the weight determined at the initial office visit. All of these 299 women had reported before the twelfth week of gestation. Their weight curve is depicted in Figure 2. When compared to Figure 1, it can be seen that the two curves are almost duplicates. The average total weight gain calculated from these two different bases are within 0.1 pound of each other.

In determining what a desirable weight gain during pregnancy should be, it seemed logical to examine the weight curve in the postpartum period.⁴ (Figure 2.) Six weeks after delivery, there was still an average excess of 3.1 pounds over the third month weight. By the eighth week postpartum, the decline in weight gain had leveled off and begun to rise slightly. Although 28 per cent had fallen below their third month weight by this time, 72

⁴A postpartum visit, six or more weeks after delivery, was reported for only 246 cases. Analysis was based on only one postpartum visit per patient.

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FIGURE 2.— AVERAGE CHANGE IN WEIGHT MEASURED FROM THE THIRD - MONTH WEIGHT OF THE MOTHER ; PRENATAL AND POSTPARTUM PERIODS

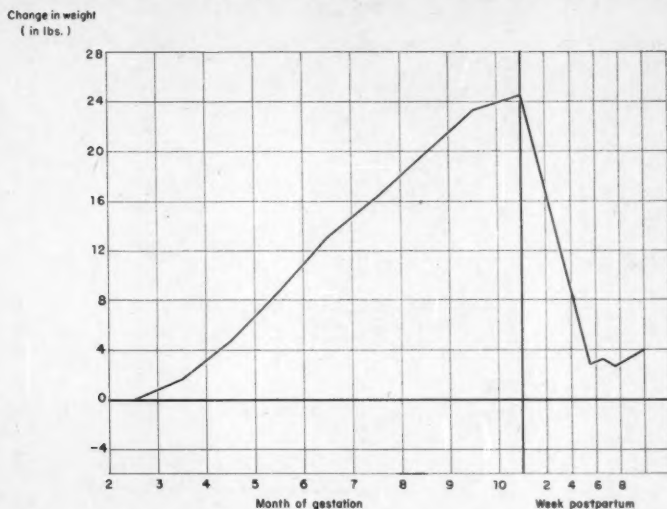


Figure 2

per cent were still above that weight. Only 24 per cent of the women were within two pounds of their third month weight at the time of the postpartum visit. It is possible that this average gain was slightly higher than desirable.

When we separated the primiparas from the multiparas and charted each group separately we found extraordinarily similar curves.⁵ The two curves approximated each other throughout the whole period, with the primiparas gaining slightly more in the last few weeks before delivery. (Figure 3 and Table 3.)

The most significant finding in this study was the apparent control of weight gain by simple verbal directions, for the stout women gained least (non-pregnant weight 140 pounds and over),

⁵In agreement with our findings are the studies of Siddall and Mack (7) and McIlroy and Rodway. Both concluded that the difference is slight, if any. No difference was reported by Slemmons and Fagan (8), Stander and Pastore (9), and Bray (1).

TABLE 3
AVERAGE CHANGE IN WEIGHT* DURING THE PRENATAL AND POSTPARTUM PERIODS,
FOR ALL CASES AND FOR PRIMIPARAE AND FOR MULTIPARAE

Month of gestation (in lunar months)	Prenatal period						Number of cases		
	Average Monthly weight gain (in pounds)			Cumulative average weight gain (in pounds)					
	Total	Primi- parae	Multi- parae	Total	Primi- parae	Multi- parae	Total	Primi- parae	Multi- parae
3-4	1.6	1.6	1.7	1.6	1.6	1.7	265	181	84
4-5	3.1	3.1	3.0	4.7	4.7	4.7	273	183	90
5-6	4.0	4.1	3.9	8.7	8.8	8.6	277	184	93
6-7	4.4	4.4	4.3	13.1	13.2	12.9	282	188	94
7-8	3.1	3.2	2.9	16.2	16.4	15.8	286	191	95
8-9	3.5	3.5	3.5	19.7	19.9	19.3	294	196	98
9-10	3.5	3.5	3.4	23.2	23.4	22.7	273	182	91
10 to delivery	1.2	1.7	0.1	24.4	25.1	22.8	104	73	31

Weeks post-partum	Postpartum period						Number of cases		
	Average weight change (in pounds)								
	Total	Primi- parae	Multi- parae	Total	Primi- parae	Multi- parae	Total	Primi- parae	Multi- parae
5-6	2.9	3.1	2.4	45	31	14			
6-7	3.1	3.0	3.5	121	78	43			
7-8	2.6	1.7	4.7	44	31	13			
8 and over	4.0	3.0	5.3	36	20	16			

* Weight change was measured from the third month weight of the mother.

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FIGURE 3.—AVERAGE CHANGE IN WEIGHT MEASURED FROM THE THIRD-MONTH WEIGHT OF THE MOTHER, FOR PRIMIPARAE AND MULTIPARAE; PRENATAL AND POSTPARTUM PERIODS

Change in weight
(in lbs.)

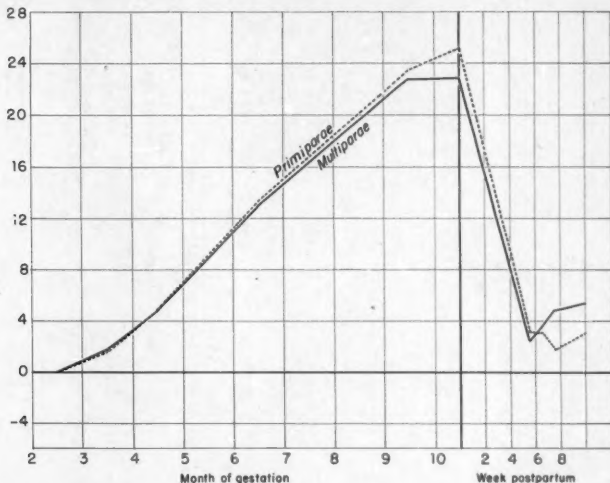


Figure 3

the thin (non-pregnant weight less than 110 pounds) gained most, and those normally built (110-139 pounds) gained an intermediate amount.⁶ The light women also showed a steeper rate of increase, which continued even through the month preceding delivery. During the few weeks prior to the termination of their pregnancy the heavy women averaged a slight loss in weight. Although the curves for light and medium women almost coincided throughout the pregnancy period, the former overtook by the sixth month, the slight lead in weight gain established by the heavier women. From the sixth month until delivery, the average weight gain of the medium-weight women fell between that of the lighter and heavier women. At delivery, the light group had gained 27.0 pounds, on the average, the heavy group 21.0 pounds,

⁶Only the study by McIlroy and Rodway (5) concurred in this conclusion.

TABLE 4
AVERAGE CHANGE IN WEIGHT* DURING THE PRENATAL AND POSTPARTUM PERIODS,
FOR THREE WEIGHT GROUPS

Month of gestation (in lunar months)	Prenatal period				
	Third month weight (in pounds)				140 and over
	Under 110	Number of cases	Cumulative average weight gain (in pounds)	Number of cases	
3-4	1.7	42	1.7	180	43
4-5	4.2	43	5.0	185	45
5-6	9.0	45	9.0	185	47
6-7	13.4	46	13.3	190	46
7-8	16.7	47	16.5	191	48
8-9	20.6	47	20.0	198	49
9-10	23.9	44	23.4	184	45
10 to delivery	27.0	20	24.5	68	16
Weeks post- partum	Postpartum period				
	Third month weight (in pounds)				140 and over
	Under 110	Number of cases	Average weight change (in pounds)	Number of cases	
5-6	8.8	6	2.9	32	7
6-7	6.0	17	3.4	79	25
7-8	5.4	7	3.0	33	4
8 and over	4.9	8	3.9	25	3

* Weight change was measured from the third month weight of the mother.

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FIGURE 4.—AVERAGE CHANGE IN WEIGHT MEASURED FROM THE THIRD-MONTH WEIGHT OF THE MOTHER, FOR THREE WEIGHT GROUPS; PRE-NATAL AND POSTPARTUM PERIODS

Change in weight
(in lbs.)

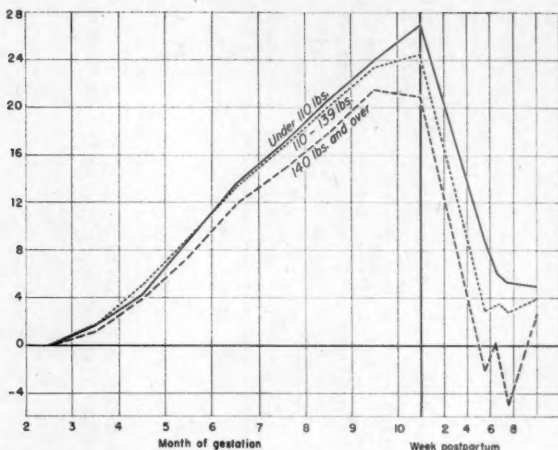


Figure 4

and the medium-weight group 24.5 pounds.⁷ (See Figure 4 and Table 4.)

At the completion of the sixth postpartum week, the groups in inverse proportion to their non-pregnant weights, showed average gains of 6.0, 3.4, and 0.2 pounds over their initial weight taken during the third month of pregnancy.

The more a woman gained during pregnancy, the greater was the difference between her postpartum weight and her third month weight. This relationship was shown above for three weight groups. Table 5 was constructed to measure this association when weight is held relatively constant. The medium-weight group, 100-139 pounds, was used. The table showed, for example, in the sixth week postpartum, that for a total gain of less than 20 pounds, 20 up to 25 pounds, and 25 pounds and over, the average differences between the postpartum weight and the third month weight were, respectively, 1.36, 4.16, and 7.08

⁷When women under 100 pounds were compared with women 160 pounds and over, the contrast in weight gain was even greater.

TABLE 5

AVERAGE CHANGE IN WEIGHT* IN THE POSTPARTUM PERIOD, ACCORDING TO TOTAL WEIGHT GAIN FROM THE THIRD MONTH TO DELIVERY**, FOR THE WEIGHT GROUP, 100-139 POUNDS

Weeks post-partum	Total weight gain (in pounds)				
	Under 20		20 - 24.9		25 and over
	Average weight change (in pounds)	Number of cases	Average weight change (in pounds)	Number of cases	Average weight change (in pounds)
5 - 6	-1.36	9	4.16	8	7.08
6 - 7	-0.74	14	3.10	17	5.75
7 - 8	-1.66	7	0.90	5	7.24
8 and over	†	1	2.94	4	6.59

* Weight change was measured from the third month weight of the mother.

** Total weight gain was computed from the third month weight of the mother to the delivery weight or a weight taken in the week prior to delivery.

† Too few cases to compute average.

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pounds. In other words, by the sixth week postpartum, a woman who gained only 20 pounds returned more nearly to her third month weight after delivery than a woman who gained 25 pounds. This relationship also held true in the other postpartum weeks.

SUMMARY AND CONCLUSIONS

A preliminary analysis was made of the weight records of 484 private patients. For final analysis, 299 were chosen whose periods of observation were longest. The whole group was of good economic status; sixty-two per cent were primiparas. They were slightly older than average childbearing women. A curve of weight gain was constructed. The effect on gain of the factors of parity and non-pregnant weight was measured.

The following conclusions were drawn:

(1) The cumulative gain throughout pregnancy could be characterized almost by a straight line. The greatest increase occurred during the seventh month. A terminal decrease in the rate of gain was apparent. Total average gain was 24.4 pounds.

(2) There was no significant difference between the gain of the primiparas and multiparas.

(3) Weight gain during pregnancy was inversely related to the usual weight of the mother. Regulation in the diet of fattening foods, according to the build of the patient, successfully controlled the gain.

(4) Six weeks after delivery, the majority of women had not yet returned to their pre-pregnant weight. When the return to normal weight should be expected, if it ever occurs, is open to investigation.

(5) The greater the total gain during pregnancy, the greater the difference between the postpartum weight and the weight at the third month of gestation.

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STUDENT AND CHILD RELATIONSHIPS IN THE NURSERY SCHOOL

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Statement of the Problem

What adults say and do in their relationships with children, and how children respond to them, were broad questions with which this study was concerned. Its immediate interest was in the practice of women college students. Their behavior with nursery school children was considered from five points of view: 1) the adult's dominative and integrative contacts, 2) her "helping" the child and leaving him alone, 3) her use of non-recommended methods, 4) her contributing to acceptable and unacceptable practice of children, and 5) possible interrelationships, or individual pattern in a person's association with children, her personal aspects, and her family background. These five approaches were selected because they pertained to basic concepts assumed to be important.

Subjects

The college students who served as subjects for study were participating in nursery school as a part of an introductory child development course. They were freshmen, sophomores, and juniors, enrolled in the University of Maine Department of Home Economics. Observational records were made of 63 different students. Each was observed for at least one ten-minute period. Thirty-nine of the 63 were observed for two ten-minute periods and 22 for three or more periods. The students served as assistants to the nursery school teacher, who was also the instructor of their child development class.

The nursery school in which the students were participating was conducted by the Department of Home Economics. Its enrollment was limited to 12 children. During the time the records were made, October, 1939 to February, 1941, nineteen different children were enrolled. Their ages ranged from 2 to 4 years.

Procedure

The point of departure for study was actual practice with children. An observer came into the nursery school room and

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sat near a student who was with one child or a group of children. She attempted to write down everything the student said and did with the child, as well as the child's comments and behavior immediately preceding and following the adult contact. The reliability of this method of observation was checked by having two observers record simultaneously. One observer used long-hand and the other shorthand. In 80 minutes of simultaneous recording, the two observers had an average of 88 per cent similar sentences or expressions. All records of the study, with the exception of one-half hour, were made by one or the other of these two trained observers.

By a time sampling method (4), the observations were for a ten-minute period. They were made during free play and creative activities. For analysis of the material, a distinction was made concerning the amount of nursery school participation the student had when the record was made. The observation was distinguished as one taking place after the student had at least six hours of participation or as one recorded before six hours had been completed.

The following quotation illustrates the type of record which was made. It represents one-half of a ten-minute observational record of one student. She was seated with a group of children who were using clay.

- Miss R--: Would you like to move over so that there's more room? (Margaret doesn't, but there is no conflict due to crowding.)
- Margaret: Oh look, my cake broke! (shows her)
- Miss R--: Can you put it back together again?
- Margaret: No.
- Miss R--: You'll have to make another one, won't you? (Margaret does)
- Margaret: It broke again.
- Miss R--: Oh, isn't that nice? (looking at cake--not having heard what Margaret said)
- Ann: I want it. (clay tool Arras has)
- Miss R--: After you use it, you let Ann use it. (Arras does.)
- Miss R--: Let's let Betty use it now, Arras. (Betty approaches to get tool. Margaret takes it.)
- Miss R--: Betty'd like to take her turn at it. (to Margaret who has it)
- Miss R--: You sit down, and in just a minute you'll have it. (to Margaret who accidentally drops it, and Betty picks it up)
- Miss R--: Margaret, you sit down. You had your turn, and

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Now let's let Betty. (Betty keeps tool)

Miss R--: Margaret, let's give the dish back to Betty.
(Margaret took Betty's dish when Betty took her tool. Margaret returns it.)

In classification of observational records, such as the one just quoted, a variety of procedures was used. Several approaches involved use of a method developed by Anderson (1). The purpose of his technique is to measure domination and socially integrative behavior in teachers' contacts with children. He has listed 19 categories of adult contacts and has considered 8 of them as dominative, 9 of them as integrative, and 2 as "lecture", not clearly classifiable as either dominative or integrative. After an adult's behavior has been classified according to these categories, the ratio of dominative to integrative contacts can then be computed.

In his description of concepts, Anderson says, "Domination is the behavior of a person who is inflexible, rigid, deterministic, who disregards the desires or judgment of others, who himself in the conflict of differences has the answers. Examples are the use of force, commands, threats, shame, blame, attacks against the personal status of another.... The term integrative behavior was chosen to designate behavior leading to a oneness or commonness of purpose among differences. It is the behavior of a flexible growing person who is looking for new meanings, greater understandings in his contacts with others. It is non-coercive; it is the expression of one who attempts to understand others, who is open to new data.... No behavior is entirely integrative; none short of extermination is entirely dominative." (1, p. 89)

For use of this approach of Anderson in classification of the records of this study, some adaptations were made. His categories were used, but further explanation of them and illustrations from nursery school situations were added. The Anderson categories are listed in the sample record in Figure 1. The more specific interpretations of these categories, which the persons experimenting with the classifying found it useful to add, are included in a detailed unpublished report. Items 1 through 8, as defined there, have been considered to be dominative behavior, items 15 through 23, integrative, and items 9 and 10 have been considered to be lecture.

Figure 1 illustrates the record form and shows, by tallies and handwriting, the classification of one ten-minute observation according to dominative, integrative and lecture contacts. The student whose record of behavior with nursery school children is summarized in the sample made 2 dominative contacts and

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Name of student <u>P. Mary</u>		Names of nursery school children					
Class <u>sophomore</u>		Margaret	Anne	Ann			
Date <u>1-19-41</u>							
Observation began <u>10:25</u>							
ended <u>10:35</u>							
Observer <u>MN</u>							
Classifier <u>GH & MN combined</u>							
Anderson categories*							
D O M I N A T I O N	1. Determines, acts for	I					
	2. Direct refusal						
	3. Relocates						
	4. Postpones		I				
	5. Disapproval, blame						
	6. Warning, threats, conditional promises						
	7. Call to attention or to group activity						
	Call to attention during group activity						
	8. Rations material						
	9. Lecture method	II	III				
I N T E G R A T I O N	10. Questions: lecture method						
	11. Perfunctory question or statement	II					
	12. Approval		I				
	13. Accepts difference						
	14. Extends invitation to activity	III	II	II			
	15. Question or statement regarding interest or activity	III		II			
	16. Build up						
	17. Participation in joint activity						
	18. Sympathy						
	19. Permission						
Ratio $\frac{\text{Dominative contacts}}{\text{Integrative contacts}} = \frac{D}{I} = \frac{2}{17} = .12 = 40 \text{ percentile}$							

Figure 1

CLASSIFICATION OF INDIVIDUAL STUDENT'S OBSERVATIONAL RECORD ACCORDING TO DOMINATIVE, INTEGRATIVE, AND LECTURE CONTACTS*

* The classification form, developed by Harold Anderson, is described in his article in the June 1939 issue of Child Development.

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17 integrative contacts, which make a ratio of .12.

Final classification of a student's observational record into dominative, integrative, and lecture contacts, represented the combined judgment of two classifiers. Each classifier first classified the record separately. Then, after variations in category placement had been noted, the two classifiers decided, by discussion, which category to use for the contact upon which there had been disagreement. Actually, the amount of disagreement was comparatively small.

This ability of the two persons, who classified all of the records, to classify similarly, was checked by comparing and correlating their separate classifications. Agreement between the two classifiers was high on what constituted a contact and on whether that contact was dominative or integrative. In 200 ten-minute observational records, one classifier had 5054 as her total number of contacts and the second classifier had 4949 (23 of which were not called contacts by the first classifier); they agreed on what was called a contact in 4926 instances, i.e., 97 per cent of the time. Coefficients of correlation between the two classifiers in their placement of contacts as dominative or integrative were from $.91 \pm .023$ to $.99 \pm .0007$. Agreement was also checked on the specific category of the dominative, integrative, or lecture sections in which the contact was classified. The coefficient of correlation for category placement of 5077 contacts by two classifiers classifying separately was $.79 \pm .003$. This correlation seemed high enough to warrant use of the specific categories in the procedures which are summarized in the following paragraphs.

One approach to a student's observational record used the ratio of dominative to integrative contacts as a measure of her dominative and integrative behavior. A second approach made use of the dominative, integrative, and lecture classification procedure, just described, but selected only certain items for consideration. The purpose of this second approach was to measure the amount of "helping" behavior which a student showed in her relationship with children. This "helping" behavior was defined as items 9, 10, 19, and 21, in the adapted guide based on Anderson's categories. These categories are listed in the record form reproduced in Figure 1. They included lecturing to the child, in the sense of defining a problem, explaining or demonstrating a method; showing interest in the child's activity; participating jointly with him. The number of contacts of this type in a ten-minute record served as a measure of "helping" behavior.

A third approach was concerned with the use of certain non-recommended methods by the adult in her associations with

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children (3). Negative instead of positive, general instead of specific, and verbose instead of simple statements were considered to be of a type not to be recommended. Negative verbalization was measured by counting the number of contacts which were direct refusals, disapproval or blame, warnings or threats, (categories 2, 5, and 6 of Figure 1). General verbalization had as its measure the number of general words as defined in a detailed guide. For example, use of the words "quiet", "something else", "nice", or "like this", without further clarification, was considered to be generalization. They were counted as such when used in instances other than praise, sympathy, or interest. Verboseness was determined by counting the number of words spoken by the adult during the ten-minute observation. If a student said more than one-half of the maximum number of words per ten-minute record, her response was considered verbose.

The measures described up to this point were concerned with the adult's verbalization and action. For a more complete understanding it was necessary to study not only what the adult said and did, but also what the children's responses were. A fourth approach to the observational records had this purpose of indicating whether the student seemed to be contributing to acceptable or unacceptable practices of the child. In the classification procedure which was developed to provide this information, children's practices were listed under the headings of adjustment to routine, constructive use of equipment and materials, social adjustment, and individual well-being.

If a child's behavior seemed to be in accordance with aims accepted by the classifier, it was scored as a plus (+) which counted as a contribution of the adult to acceptable practice of children. If the child's behavior was not in accordance with aims accepted by the classifier, it was scored as a minus (-) and was counted as a contribution to unacceptable practice. The adult's contribution to children's behavior was the ratio of these minus to plus tallies during a ten-minute period. In the sample record of Figure 2, there were two unacceptable and five acceptable practices of children with which the student was, or should have been, concerned. Consequently, her contribution to the children's behavior was the ratio of two to five, or .40.

In this type of classification of an observational record, detailed instructions and illustrations served as a guide. The classifier was instructed to consider the adult to be concerned, not only where he was attempting to give guidance, but also where, according to the classifier's judgment, guidance should have been given and was not forthcoming. If the child's activity could have been placed under several headings in the classification form, then the more immediate or pressing was selected.

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Name of student	<u>R. Mary</u>	Observation began	<u>10:25</u>	Names of nursery school children			
Class	<u>sophomore</u>	ended	<u>10:35</u>				
Date	<u>1-19-41</u>	Observer	<u>MN</u>				
		Classifier	<u>GH + MN combined</u>	<u>Anna</u>	<u>Mary</u>	<u>Lucy</u>	<u>Ann</u>
A. Adjustment to routine							
1. dressing and undressing							
2. bathroom							
3. eating, drinking juice or water							
4. remaining in play space							
5. putting away and cleaning up							
6. miscellaneous							
B. Constructive use of equipment and materials (acceptable place, amount, skill, etc.)							
7. large equipment and furniture							
8. small equipment							
9. aquarium							
10. beads							
11. blocks							
12. books							
13. broom							
14. clay						+	
15. crayons							
16. doll equipment							
17. hammer and nails							
18. paint							
19. paste							
20. piano							
21. plants							
22. sand							
23. scissors							
24. water							
25. miscellaneous							
C. Social adjustment							
26. social play							
27. sharing (using equipment together)						+	
28. taking turns (waiting for turn)					+		
29. respect for property rights							
2a. asks to use material							+-
2b. stops taking possession of another					-+		
c. repairs damage to another's work							
30. consideration for others							
a. being "gentle" to others							
b. stops hurting another							
31. adjustment to custom (incl. furniture)							
32. miscellaneous							
D. Individual "well-being"							
33. stops crying							
34. safety							
35. healthful or hygienic practice (in play)							
36. miscellaneous							
37. stopping negative or destructive behavior but not substituting the desirable in the situation (to be used if other items do not apply)							
Ratio	Inacceptable practices = $-\frac{1}{4} = \frac{2}{5} = .40 = 46 \text{ percentile}$ Acceptable practices						

Figure 2

CLASSIFICATION OF INDIVIDUAL STUDENT'S OBSERVATIONAL RECORD ACCORDING TO ADULT CONTRIBUTION TO INACCEPTABLE AND ACCEPTABLE PRACTICES OF CHILDREN

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The procedure considered only the more objective practices, more easily agreed upon as socially acceptable, healthy, or skillful, and did not attempt to judge the individual child's progress in self-reliance, initiative, and attitude toward authority. Although these less tangible aspects of growth were not considered, it was assumed that the classifiers needed to be trained persons. As in the case of the dominative and integrative behavior, the combined judgment of two classifiers provided the final classification of a student's record.

Reliability of this method was checked by studying agreement between two classifiers, classifying separately. Agreement on whether a child's practice was acceptable or unacceptable was very high. In no instance where both classifiers considered a portion of a record as a practice with which the adult was or should have been concerned, did they disagree on whether the contribution was a plus or a minus. In separate classifications of 102 ten-minute records, one classifier had 551 practices, and the other had 485. They agreed in calling the same portion of a record a practice in 471 instances. This made a per cent agreement of 85 to 97 per cent on what constituted a practice. When each of the classifiers was considering the same portion of a record a practice, they placed it in the same specific category (assigned it the same number on the classification device), 83 to 100 per cent of the time. Variation in per cent is due to use of the smaller or larger total.

When the student's observational record had been classified according to contribution to children's practice, use of non-recommended methods, "helping" the child, and dominative and integrative contacts, then possible interrelationships between these measures of behavior were studied. Furthermore, possible interrelationships between them and the student's own family background and personal aspects were considered. This fifth approach was concerned with individual pattern. A biogram method (2) presented the information about an individual in a graphic form. As much information as possible was converted to a percentile interpretation and then plotted.

Figure 3 shows the graphing in profile form of material concerning an individual student. The majority of items listed there regarding personal aspects and family background are self-explanatory, such as height and weight, or well-known techniques, such as the Bernreuter personality inventory. Two of the items were based on measures developed for use in this study. A rating sheet was devised to yield a score on the dominative and integrative behavior of the student's mother and father. It was a check list or questionnaire with the same categories as those of the device previously described for

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Name R. Mary Birthdate 1-15-21 Age at college ent. 18 years 9 months
 Home address 1 Name of town Rockland, Maine Size of town 9000 Rural ()
 Early life, city, small town, farm - 1st 10 years Town 2nd 10 years Town
 Position in family 1. Bro. 2. Sis. 3. ✓ 4. Sis. 5. 6.
 Father - age 47 Occupation Saw Mill Owner Birthplace Eastport, Maine
 Mother - age 44 Occupation Homemaker Birthplace Bangor, Maine
 Health - Student considers self - very strong ✓ mod. strong ✓ delicate
 Apparent health N date 9-21-39
 Physical exam, remarks and recommendations

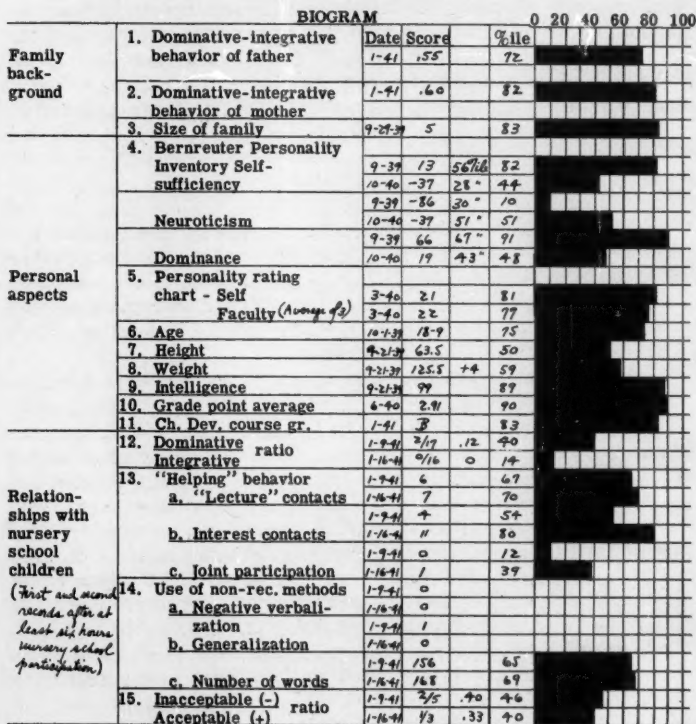


Figure 3

FACE SHEET AND BIOGRAM OF INDIVIDUAL STUDENT

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classifying the student's dominative and integrative behavior with nursery school children. The student was asked to recall how frequently each parent showed the various types of contacts, such as direct refusal, or acceptance of difference of opinion. For one personality measure, the student's personality rating chart was converted to a numerical score. Numerical values were arbitrarily assigned to check marks, which rated the individual average, above or below average in various qualifications.

For the purposes of this study the biogram served as a record form summarizing information concerning the individual student's family background, personal aspects and nursery school behavior. In the consideration of interrelationships of these aspects, raw scores were used. The percentile placements included in Figure 3 suggest possible uses of such a method of interpretation. However, percentiles did not enter into treatment of the data.

Findings

Findings were of two general types. One concerned interrelationships within the individual student. A second type of findings had less emphasis on the individual and more emphasis on the composite or group picture. The disadvantages of a composite picture were realized, but it seemed to be a practical means of considering general trends.

Students, as a group, were found to be more integrative than dominative in their relationships with nursery school children. This conclusion was based on an analysis of 63 observational records classified according to an adaptation of the Anderson (1) classification device. Each of the 63 different students, whose records were used, had been observed for a ten-minute period, after she had participated in nursery school for at least six hours. The records included a total of 1282 contacts of adults with children, 151 of which were dominative, 844 were integrative, and 287 were lecture contacts. The ratio of all the dominative to all the integrative contacts was .18. More specific information concerning the ratio of dominative to integrative contacts is provided in Table 1. In the table the mean ratio is .35 for freshmen, .23 for sophomores, and .22 for juniors. In this division of students according to their college class, the juniors showed a greater homogeneity than the freshmen and sophomores. The range of ratios, the median, mean, and sigma were lower for the juniors.

Just as the analysis in Table 1 revealed college class as a possible variable affecting the ratio of dominative to integrative contacts, other analyses revealed other possible influences.

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TABLE 1

DOMINATIVE AND INTEGRATIVE BEHAVIOR OF STUDENTS
WITH CHILDREN (BASED ON FIRST TEN-MINUTE
OBSERVATIONAL RECORDS AFTER AT LEAST
SIX HOURS NURSERY SCHOOL PARTICIPATION)

	N	Ratio of Dominative to Integrative Contacts				
		Range	Median	Mean	Sigma	PE Sigma
Class of 1941 (juniors)	23	0 to .69	.14	.22	.21	.02
Class of 1943 (freshmen and sophomores)	40	0 to 1.24	.17	.30	.32	.02
Freshmen of class of 1943	22	0 to 1.24	.18	.35	.36	.04
Sophomores of class of 1943	18	0 to 1.04	.12	.23	.25	.03

Influence of the amount of nursery school participation was suggested by a comparison of records of the same students made before and after six hours of nursery school. The mean ratio of dominative to integrative contacts rose with further participation. Twelve freshmen for whom two records were available showed a change from a mean ratio of .19 to .31 and 16 sophomores from .18 to .21 when records before and after six hours of participation were compared. The sophomores also had a third record made after additional experience. The mean ratio for these additional records made still later in the semester was .24. Although the ratios rose with further experience they were, in each instance, below .32.

Ratios were also low when the possible influence of individual nursery school children was investigated. Each one of the 19 nursery school children with whom the students were associated received more integrative than dominative contacts. In the case of nursery school activity, the implication was similar to that for the other variables which were considered. Proportions of dominative to integrative contacts of students with children varied according to college class, amount of nursery school participation, individual children, and activity, but never to the extent of ruling out the broad conclusion that students

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were more integrative than dominative.

In their dominative contacts, the most frequent behavior was to warn or threaten. It represented 25 per cent of the total of 151 dominative contacts in the 63 records. To directly refuse and to ration material were the least frequent classifications with 4 per cent each. Most frequent integrative behavior was a question or statement regarding the child's interest or activity, which accounted for 45 per cent of the total of 844 integrative contacts in the 63 records. Next in order of frequency with 21 per cent was the category, to extend an invitation to activity, which related to solution of conflict, improved behavior or adjustment to routine by the child. Participation in joint activity with the child represented 16 per cent of the total. The category of "build up" was of special interest because of its association with the development of an alert, inquiring, "problem solving" attitude. Only 2 per cent of all integrative contacts were of this "build up" type, which helped the child to arrive at a better definition of a problem or a better solution without giving the final answer.

The contacts accepted as indications of "helping" behavior tended to be either frequent or rare in an individual student. Although contacts of this type, i.e., lecture, interest, and joint participation, comprised 64 per cent of all contacts, a significant proportion of students made none or very few of them. Findings showed extremes to be more prevalent than an intermediate number of "helping" contacts. In Table 2 information is summarized for juniors and for freshmen and sophomores grouped. With but one exception, 35 per cent or less of the students had an intermediate number. On the other hand, with the one exception, 65 per cent or more had none or only one, or else, six or more contacts of a particular category considered to mean helping the child. Such information may be pertinent to a concept which accepts balance in helping and leaving alone as important for adequate guidance.

Use of non-recommended methods, such as negative verbalization, generalization, and verbosity, was rare. Proportions of non-recommended contacts to total number of contacts are presented in Table 3. According to this table, students seldom made direct refusals, showed disapproval or blame, warned or threatened. These forms of negative verbalization represented 7 per cent of all contacts of junior students and 5 per cent of all contacts of freshmen and sophomores. Furthermore, they were rarely general instead of specific in their suggestions to children. General statements represented only one per cent of all contacts for juniors and two per cent for freshmen and sophomores.

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TABLE 2

STUDENT BEHAVIOR HELPING THE CHILD OR LEAVING HIM ALONE (BASED ON FIRST TEN-MINUTE OBSERVATIONAL RECORDS AFTER AT LEAST SIX HOURS NURSERY SCHOOL PARTICIPATION)

Category		Per cent of Students		
		Leaving alone with 0 or 1 contacts	Inter-mediate with 2 to 5 contacts	Helping with 6 or more contacts
Class of 1941 (juniors) N = 23	Lecture	34	57	9
	Interest	35	35	30
	Joint participation	60	27	13
Class of 1943 (freshmen and sophomores) N = 40	Lecture	32	31	37
	Interest	35	35	30
	Joint participation	52	33	15

TABLE 3

USE OF NON-RECOMMENDED METHODS BY STUDENTS WITH CHILDREN (BASED ON FIRST TEN-MINUTE OBSERVATIONAL RECORDS AFTER AT LEAST SIX HOURS NURSERY SCHOOL PARTICIPATION)

Category	Per cent of Total Contacts*	
	Class of 1941 (juniors) N = 23	Class of 1943 (freshmen and sophomores) N = 40
Negative Verbalization	7	5
General Verbalization	1	2
Total	8	7

* Total number of contacts is 316 for the class of 1941 and 966 for the class of 1943.

A significant proportion of students showed no contacts of a particular non-recommended type. When juniors of the class of 1941 and freshmen and sophomores of the class of 1943 were considered separately, 56 per cent of those in the class of 1941

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had no negative verbalization and 91 per cent had no general verbalization. For the class of 1943, 47 per cent had no negative contacts; 67 per cent had no general statements. These per cents indicated variations in use of non-recommended methods according to college class. There were more juniors than freshmen and sophomores grouped who had no contact of a particular type.

Freshman use of the non-recommended methods was more frequent than sophomore. In negative verbalization the proportion for freshmen was approximately 5 per cent points higher than for sophomores. In general verbalization it was two per cent points higher. For the 12 freshmen, who had records early in the semester and after 6 hours of participation, negative verbalization represented 8 per cent of all contacts in the early records and 7.8 per cent after further participation. Their generalization rose from 2.0 to 3.2 per cent. For 16 sophomores, the per cent of negative verbalization was 3.3 per cent early in the semester and 2.3 per cent after at least 6 hours of participation. Sophomore generalization was .5 per cent early in the semester and 1.1 per cent at the later time. In both classes variation according to amount of participation was very slight. With further nursery school experience, both freshmen and sophomores showed a slight decrease in negative contacts and a slight increase in general verbalization.

A third type of non-recommended method, verbosity, was also found to be rare. Seventy per cent of the juniors in the class of 1941 spoke less than one-half the maximum number of words of any ten-minute observational record in the junior group. The maximum number of words of any junior was 230. The maximum for freshmen and sophomores of the class of 1943 was 540 words. Eighty-six per cent of the freshmen and sophomores said less than one-half of this maximum. Fifty-five per cent of them said less than one-half the junior maximum of 230 words. This 55 per cent compared to the 70 per cent for the juniors indicates the juniors talked less than the freshmen and sophomores considered as a group. Considered separately, sophomores were more verbose than freshmen. From early in the semester until a later time, per cent of freshmen saying less than one-half the maximum decreased from 100 to 92 per cent; per cent of sophomores decreased from 88 to 81 per cent. Both groups talked more as amount of nursery school experience increased.

When responses of the nursery school children were studied, the students were found to be contributing to more socially acceptable and healthy than unacceptable and unhealthy practices of the children. For the 63 students with ten-minute observa-

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tional records made after at least six hours of nursery school participation, the ratio was .40, when all their contributions to unacceptable practices were considered in proportion to all their contributions to acceptable practices. In 244 contributions to children's behavior, 70 were minus; 174 were plus; this makes the .40 ratio of unacceptable to acceptable. Table 4 presents more specific information concerning students' contributions to behavior of the children. In this table, the finding for the total group, i.e., the presence of mean ratios below .60, probably should have more attention than comparisons between classes.

TABLE 4

STUDENTS' CONTRIBUTION TO ACCEPTABLE AND
INACCEPTABLE PRACTICE OF CHILDREN (BASED
ON FIRST TEN-MINUTE OBSERVATIONAL
RECORDS AFTER AT LEAST SIX HOURS
NURSERY SCHOOL PARTICIPATION)

	N	Ratio of Students' Contributions to Inacceptable (-) and Acceptable (+) Practices of Children				
		Range	Median	Mean	Sigma	PE Sigma
Class of 1941 (juniors)	20*	0 to 2.0	.04	.50	.78	.08
Class of 1943 (freshmen and sophomores)	40	0 to 1.2	.45	.51	.41	.03
Freshmen of class of 1943	22	0 to 1.0	.42	.44	.36	.04
Sophomores of class of 1943	18	0 to 1.2	.52	.60	.44	.05

* This number of cases differs from the number in Table 1 because three students' records contained no practices of children in response to the student.

Comparisons are questionable because of the small number of contributions to children's practice per record. When none or only one contribution of a plus or minus type was made, a wide range of ratio resulted, although the variation was based on a difference of a single practice. With this understanding of

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the limitations of the measure, it is to be noted that juniors had the low median of .04. These same juniors had the intermediate median in ratio of dominative to integrative contacts reported in Table 1. Sophomores had the lowest median for dominative integrative ratio. These sophomores, who were the most integrative of the three classes, had the highest median ratio of contributions to minus and plus practices of children. Their contributions to unacceptable behavior were greater than those of the juniors or of the freshmen. Further data would be necessary to determine a possible optimum in the sense of relationship between dominative integrative ratio and ratio of contributions to unacceptable and acceptable practices of children. The evidence presented here and material to be presented in the section on individual pattern suggest that neither the highest nor the lowest in dominative integrative ratio accompanies the lowest in minus plus ratio of contributions to children's behavior.

As was true in the case of dominative integrative behavior, students' contributions to the practice of children varied according to college class, amount of nursery school participation, individual children, and nursery school activity. Change in mean ratio was slight when records made early in the semester were compared with those made after at least six hours of nursery school experience. Mean ratio for 12 freshmen changed from .43 to .47. The change for 16 sophomores was from .62 to .58. These same sophomores had another record made still later in the semester. After this additional nursery school experience their mean ratio of minus to plus contributions to children's practice dropped to .41. Although 3 of the 19 children with whom the students were associated received more contributions to unacceptable than to acceptable practice, the general picture was one which bore out the broad conclusions previously stated. Most individual children practiced more that was acceptable than unacceptable in their associations with students. Whatever the nursery school activity, the students contributed to more acceptable than unacceptable practices.

Material up to this point has been concerned with students as a group. The following findings concern the individual student, the interrelationship of her background, personal aspects, and behavior with nursery school children. From the many possibilities for study of the individual, a few measures were selected for investigation.

One finding concerning interrelationship within the individual student showed correlation of dominative integrative behavior in one ten-minute observational record with other ten-minute samples. For the 22 students for whom records were made at

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three different times the intercorrelations in dominative integrative ratios were as follows:

First ten-minute observational record
before 6 hours nursery school participation and first after at least 6 hours, $r = .555$, $PE_r = .099$

First ten-minute observational record
before 6 hours nursery school participation and second after at least 6 hours, $r = .309$, $PE_r = .128$

First ten-minute observational record
after 6 hours nursery school participation and second after at least 6 hours, $r = .661$, $PE_r = .081$

The average intercorrelation is .508 which yields an estimated reliability for the sum or average of three ten-minute observations of .755 by use of the Spearman-Brown prophecy formula. When just two records are used, the first and second after six hours of nursery school participation, .709 is the reliability coefficient for the average of two ratios.

Because of its reliability and its pertinence to basic concepts, dominative integrative behavior was selected as one measure in the light of which to consider other measures. The individual student's dominative integrative ratios for first and second records after at least six hours of nursery school participation were averaged. This average was correlated with other measures of behavior with children, family background, and personal aspects. These correlations are presented in Table 5. For the 39 students for whom two records after at least six hours of nursery school experience were available, certain items showed some correlation; others showed very little or none.

According to Table 5, dominative integrative behavior of the father is an aspect of family background which yielded some suggestion of trend. As the ratio of dominative to integrative behavior of the student's father increased (as measured by her response to a questionnaire), the student's own ratio in her relationships with nursery school children tended to increase. The more dominative students had the suggestion of a tendency to have more dominative fathers. The coefficient of correlation was $.30 \pm .10$. No suggestion of trend was evident in relation to dominative integrative behavior of the mother or size of family.

When personal aspects of the student were correlated with her dominative integrative behavior with nursery school children, the greatest suggestion of trend was in the case of intelligence. This coefficient of correlation was $-.41 \pm .09$. Height

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TABLE 5

CORRELATION BETWEEN DOMINATIVE INTEGRATIVE BEHAVIOR OF STUDENT WITH CHILDREN AND FAMILY BACKGROUND, PERSONAL ASPECTS, AND OTHER RELATIONSHIPS WITH CHILDREN

		Number of Students*	Correlation with Student's Ratio of Dominative to Integrative Contacts with Children**	
			r	PE _r
Family back- ground	Dominative-integra- tive behavior of father	34	.30	.10
	Dominative-integra- tive behavior of mother	37	.08	.11
	Size of family	37	-.10	.11
Personal aspects	Bernreuter Personality Inventory			
	Self-sufficiency	37	.02	.11
	Neuroticism	37	-.19	.11
	Dominance	37	-.07	.11
	Personality rating chart			
	Self	28	.07	.13
	Faculty	29	-.01	.13
	Age	39	.26	.10
	Height	37	-.30	.10
	Intelligence	37	-.41	.09
	Child Development course grade	39	-.25	.04
Relation- ships with nursery school children	Total number of contacts with children	39	-.16	.08
	Total number of contri- butions to children's practice	39	.52	.08
	Ratio of contributions to unacceptable and acceptable practices of children (-/+ ratio)	39	.49	.06

* Variation in number of students is due to lack of information for certain students.

** Ratio of dominative to integrative contacts used in these correlations is the average of two ratios, those of the student's first and second records after at least six hours of nursery school participation.

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and age also yielded some suggestion of trend, with coefficients of $-.30 \pm .10$ and $.26 \pm .10$. As ratio of dominative to integrative behavior increased, intelligence and height tended to decrease, age to increase. In other words, the more integrative student tended to be more intelligent, taller and younger. In this connection, it is interesting to speculate on the interrelationships of these personal aspects. Further speculation might consider the part they play in a situation such as the one being studied where students were receiving class instruction and were under the supervision of the instructor in the nursery school. In the coefficients of correlation for personality measures and for grade in the introductory child development course, the figures were lower than those just stated.

In relationships with nursery school children, increase in ratio of dominative to integrative behavior tended to accompany an increase in the total number of contributions to children's practice with which the student was or should have been concerned. This coefficient of correlation was $.52 \pm .08$. Not only an increase in the number of contributions to children's practice, but also an increase in the proportion of those practices which were unacceptable tended to accompany a rise in dominative integrative ratio. The correlation of dominative integrative ratio with ratio of contributions to unacceptable and acceptable practices of children was $.49 \pm .06$. When all contacts were considered and not just those where the student was or should have been concerned with the child's practice, the correlation was low and negative, i.e., $-.16 \pm .08$.

TABLE 6

RELATIONSHIPS BETWEEN STUDENTS' CONTRIBUTION TO CHILDREN'S PRACTICE AND DOMINATIVE INTEGRATIVE BEHAVIOR (BASED ON AVERAGE OF FIRST RECORD BEFORE SIX HOURS NURSERY SCHOOL PARTICIPATION AND FIRST AND SECOND AFTER AT LEAST SIX HOURS)

Range of Mean Dominative Integrative Behavior	Number of Students	Mean Contribution to Children's Practice			
		-/+ Ratio	Number of Practices		
			-	+	Total
0 to .09	9	.45	1.05	2.54	3.62
.10 to .19	5	.30	.9	3.52	4.42
.20 to .29	5	.52	2.02	3.78	5.84
.50 to .89	3	.69	2.63	4.53	7.2

The inadvisability of overemphasis of any of these correlations is illustrated in Table 6. This table indicates

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suggestions of trends; it also shows deviations from consistent trends. A high score in one measure may accompany an intermediate score in another measure. Use of total score instead of proportion may yield findings with different implications.

In Table 6 contributions to children's practice served as a point of reference. As in the case of the correlations previously stated, rise in dominative integrative ratio was accompanied by rise in total number of contributions to children's practice. As mean dominative integrative ratio went from 0 to .89, mean number of total contributions to children's practice went from 3.62 to 7.2. Likewise, the trend of increase was consistent for the number of contributions to acceptable practice. These rose from 2.54 to 4.53, as the dominative integrative ratio rose. On the other hand, number of contributions to unacceptable practice, as well as ratio of - to + contributions, did not follow a consistent trend. The smallest number of minus contributions and the lowest proportion of - to + appeared at an intermediate level of dominative integrative behavior. The students whose mean dominative integrative ratio was from .10 to .19 had a mean -/+ ratio of .30 and a mean number of minus contributions of .9. Students with dominative integrative ratios above and below this level had a larger proportion and larger total number of minus contributions. This intermediate level of dominative integrative behavior as perhaps significant for low -/+ ratio was not brought out by the coefficient of correlation.

Such complexity of pattern, as well as the characteristics of the measures used, make it important to stress the need for further study. Recognition of the limitations of the measure was especially necessary in the case of contributions to children's practice and amount of negative verbalization. In both instances, as has been previously stated, the total number of such contacts was comparatively small in a ten-minute period. Neither the ratio of contributions to unacceptable and acceptable practice of children nor the amount of negative verbalization correlated from one ten-minute record to another. To provide a somewhat larger sample, either two or three ten-minute observations served as the basis for the material reported in Tables 5, 6, and 7.

When amount of negative verbalization served as a measure to which to relate contributions to children's practice, some relationship between the two was found. The coefficient of correlation, based on two records of 39 students, made after at least six hours of nursery school participation was $.50 \pm .08$. As proportion of contributions to unacceptable practice rose, use of the non-recommended method of telling the child what not to do, tended to increase.

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In further study of individual pattern, which made use of some of the findings already stated, six aspects of the student were considered. Three were measures of relationships with children, i.e., dominative integrative ratio, ratio of contributions to unacceptable and acceptable practice of children and amount of negative verbalization. They were selected because of their indication of quality of relationships with children and not just quantity. In addition to the fact that concepts of the study accepted each one as important, findings showed each related to another. Increase in ratio of contributions to unacceptable and acceptable practices of children tended to accompany increase in amount of negative verbalization. Some tendency was found for low proportion of dominative behavior to accompany low proportion of contributions to unacceptable practices of children. However, evidence suggested that not the lowest but an intermediate ratio of dominative to integrative behavior was perhaps predictive of the lowest proportion of - + contributions. This variation was given some recognition in the rough sorting process which considered the student's position only as above or below the median.

Not only the three measures of the student's relationships with children but also three measures of her family background and personal aspects were considered in the approach which attempted further study of individual pattern. Dominative integrative behavior of the student's father, her intelligence and height were the personal and background measures which were used. They were selected because their correlations with the student's dominative integrative behavior were highest. Height and intelligence had negative correlations and dominative integrative behavior of the father had a positive correlation with a high proportion of dominative behavior in the student.

To consider at the same time the six measures which seemed perhaps predictive of recommended relationships with children the procedure indicated in Table 7 was used. The individual student was considered according to her position above or below the median in the six measures. The medians were those of a larger group, i.e., the college class to which the 22 students belonged. In computing a correlation, on one axis was number of items present, for possible assets in relationships with children (D/I ratio, -/+ ratio, and number of negative contacts below the median). On the other axis was number of items present, for possible personal and background assets, (intelligence and height above the median, D/I ratio of the father below the median). Table 7 indicates the distribution of cases for this multiple grouping on both axes. The coefficient of correlation for the information pictured in the scatter diagram

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arrangement of the Table is $.41 \pm .12$. To consider the certainty of this correlation where each axis had only four divisions, the coefficient of contingency was computed. This coefficient is .50.

TABLE 7

INDIVIDUAL PATTERN OF STUDENT BACKGROUND, PERSONAL ASPECTS, AND RELATIONSHIPS WITH NURSERY SCHOOL CHILDREN

Information concerning Relationships with Children:*	Information concerning Background and Personal Aspects:			
	Intelligence above the median? Height above the median? D/I behavior of the father below the median?			
D/I ratio below median? -/+ ratio below median? Number of negative verbalizations below median?	0 of 3 items present N = 2	1 of 3 N = 5	2 of 3 N = 12	3 of 3 N = 3
3 of 3 items present N = 6			5	1
2 of 3 items N = 7		2	4	1
1 of 3 items N = 6	1	2	3	
0 of 3 items N = 3	1	1		1

* This information concerning relationships with children is based on the average of 3 records for each student, one record before 6 hours nursery school participation, and two records after 6 hours.

In terms of pattern for the individual, Table 7 gives the suggestion that presence of more of the items in nursery school relationships (D/I ratio, -/+ ratio, and number of negative verbalizations below the median), tends to accompany presence of more of the items in background and personal aspects (intelligence and height above the median, D/I ratio of the father below the median). In view of the complexity of the individual, any suggestion that six rough measures, such as these, yield pertinent information, needs to include recognition of the fact that such information is only a slight step in the direction of understanding of adult-child relationships.

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Summary and Conclusions

Student practice with nursery school children tended to be acceptable but insufficient. Sixty-three college girls, participating in nursery school as part of an introductory child development course, were observed during free play and creative activities by a time sampling method. Verbatim records were made of what they said and did and the children's behavior in relation to them as they assisted the nursery school teacher. The students' practice was in agreement with recommended adult-child relationships in the following respects. They were more integrative than dominative. They seldom used non-recommended methods: their verbalization was seldom negative, general or verbose. They contributed to more acceptable and healthy than unacceptable and unhealthy practices of the children. On the other hand, student behavior seemed insufficient in the following respects. They rarely used "build up" (defined by Anderson (1) as the adult's helping the child to arrive at a better definition of a problem or a better solution, without giving the final answer). They showed extremes in helping the child and leaving him alone. Student practices with children showed some variation according to college class, amount of nursery school participation, individual children with whom the student was associated, and activity of the children.

Pattern in the individual's family background, personal aspects, and relationships with children, warranted further study. Suggestions of interrelationship were found in various aspects of the student's behavior with children. An intermediate proportion of dominative to integrative behavior tended to accompany a high proportion of contributions to acceptable practices of children. Proportion of contributions to unacceptable practice of children tended to increase as amount of negative verbalization increased. Increase in ratio of dominative to integrative behavior tended to accompany increase in number of practices of children to which the adult was or should have been contributing. Suggestions of pattern to be investigated were also found in the individual's family background, personal aspects, and behavior with children. The following aspects seemed significant for desirable student nursery school child relationships: proportion of dominative to integrative behavior of the father below the median, height and intelligence above the median, proportion of dominative to integrative behavior, proportion of contributions to unacceptable and acceptable practices of children and number of negative verbalizations, all below the median.

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¹The more detailed study, which this article summarizes, is on file at the University of Michigan Library, Ann Arbor, Michigan. In the preparation of the material for a doctoral dissertation, Dr. Willard C. Olson gave valuable assistance. Another study which considered students not only in nursery school but also in other aspects of a Home Economics Education curriculum, will be reported later.

A PRELIMINARY SCALE FOR THE MEASUREMENT OF THE MENTALITY OF INFANTS

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Every parent is interested in the mentality of his child. He generally believes it to be unusually bright and can discover numerous signs which demonstrate this fact. To date relatively little has been accomplished in the accurate measurement of the mentality of children less than two years of age. The most notable exceptions to this are the tests devised by Gesell,¹ Buehler,² Shirley,³ Fillmore,⁴ and Cattell.⁵

The present study is the direct result of a request from the Cradle in Evanston for a method of determining which infants, if any, should not be placed for adoption because of mental deficiency. Those in charge of the Cradle as well as those in most other placement agencies believe the earlier adoption is possible the better. Generally if there is no indication of mental or physical defect the infants at the Cradle are placed by the age of three months. Because the tests constructed by earlier investigators generally start not earlier than three months, or in those cases in which they start earlier, consist of only a few items, the present authors began the construction of a new battery of tests for use with younger infants. All the available tests were carefully studied and those items which gave promise of value were used or adapted for use in an experimental battery. In addition a series of new items was

¹A. L. Gesell, *The Mental Growth of the Pre-School Child*, New York, Harpers, 1940, and A. L. Gesell and Helen Thompson, *The Psychology of Early Growth*, New York, Macmillan, 1938.

²Charlotte Buehler, *The Mental Development of the Child*, New York, Harcourt Brace, 1930.

³Mary W. Shirley, *The First Two Years*, Minneapolis, University of Minnesota Press, 1933.

⁴Eva A. Fillmore, *Iowa Tests for Young Children*, Iowa City, University of Iowa Studies in Child Welfare, 1936.

⁵Psyche Cattell, *The Measurement of Intelligence of Infants and Young Children*. (Revised.) New York, The Psychological Corporation, 1942.

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devised and added to the other items to complete the battery.

Two criteria were used in selecting the test items: 1) Objectivity in giving and scoring; and 2) Suitability as a measure of adaptability rather than of physical structure or reflexes. In the first form of the test battery the second criterion had to be interpreted very liberally but it has formed one of the principal bases for later tests.

Certain other criteria which could operate only after a test item had been administered for some time also determined the inclusion or rejection of test item. Each item should show: 1) Age progression i.e., younger infants should be unable to pass an item which older children should be able to pass, or, as is more often the case, progress in mastery of more difficult stages of an item of the test should parallel age progress; 2) Variability of success at any one age level, i.e., not all children at a given age should be expected to pass an item (if approximately 75 per cent of the infants of the same age can succeed with an item it is considered correctly placed); 3) Agreement of each item with the total score on the test, i.e., internal consistency of the items composing the test, and 4) most important of all, Correlation with I.Q.'s secured later from other standard tests.

Based upon the first two criteria previously mentioned, a battery of 32 tests was assembled. About one-third of these were new, another one-third were adaptations of other tests and the rest were taken directly as used by previous investigators. The tests were administered weekly. In most cases the testing was begun when the child was one week of age and continued until the end of the twelfth week. No test was given more than one day removed from this schedule. Thus the interval between two successive tests was generally seven days and never fewer than six nor more than eight.

Thirty-one children were given this battery of tests. Ten other children were given the tests beginning at the seventh week and ending at the twelfth week.

The following is a brief description of the tests and methods of scoring them. This list is to be considered a very tentative battery. In successive revisions many of these test items will be discarded, others will be revised, and new items will be added.

1. Visual Regard (small silvered folding metal tape).⁶ Pull out about 14 inches of tape, hold it by the pulled-out end and bring round case within the baby's line of vision about ten

⁶Materials indicated in parentheses for this and succeeding tests.

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inches from the face. If the baby does not immediately fixate the tape, make several attempts to get it to do so. As soon as fixation occurs, move the tape horizontally from one side of the baby's crib to the other and note if the baby follows it continuously with its eyes. If the baby is able to follow horizontally even a short distance, proceed to move the tape vertically, about the same distance above as below the baby's eyes and again note whether it follows the tape. If it does then move the tape circularly at a radius of about ten inches from the baby's nose and again give credit if the baby follows continuously. (See Table 1.)

2. Flashlight (a small pencil type flashlight). Hold the flashlight about two inches from the baby's eye. Flash it momentarily in one eye and then the other. Credit is given if the child in each case blinks or averts its eyes.

3. Knee-pinch. With the baby's legs in a semi-flexed position, briskly pinch the inside, fleshy part of one knee, then the other, then both at the same time. Credit if a definite withdrawal reaction occurs. (See Table 2.)

4. Cheek-touch. Place the forefinger at the right corner of the baby's mouth and let it remain there for several seconds, then repeat for the left corner. Credit if the head is turned toward the finger.

5. Cheek-tap. With the ball of the forefinger, tap briskly several times the fleshy part of the baby's right cheek, then tap the left cheek in the same manner. Credit if the baby protrudes the lips simulating sucking movements.

6. Eyelid-touch. Place the forefinger lightly on the lid of the baby's right eye; then repeat for the left eye. Credit if the eye is tightly closed to finger.

7. Lip-stroke. Move the forefinger lightly from side to side on the baby's upper lip and repeat for the lower lip. Credit if sucking movements occur.

8. Alcohol on Abdomen (rubbing alcohol and cotton swab). Saturate an applicator with alcohol and apply it with one swift stroke to the baby's abdomen a little to one side of its navel. Credit if there is a definite withdrawal of abdomen.

9. Block on Chest (small play block slightly over one inch square). Place the block on the baby's bare chest and leave it there for five seconds. Credit if there is some movement to remove the block.

10. Hand Threat to Eyes. With the baby lying in a supine position and with eyes open bring the open palm with the flat side held parallel to the front of the baby's face quickly to within about one inch of the baby's eyes. Credit if there is a definite wincing movement.

11. Dangling Ring (ordinary embroidery ring about three

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TABLE 1

TEST OF VISUAL REGARD

**NUMBER OF RESPONSES OF EACH TYPE FOR 11 INFANTS
IN 12 WEEKS**

12					11
11		2			9
10					11
9					11
8			2	2	7
7			1	1	9
6		1	3	2	5
5		3	2	1	5
4		8	2	1	
3		5	5	1	
2	10			1	
1	10	1			
	Stares	Fixates	Follows	Follows	Follows
	Vacantly	Objects	Horizontally	Vertically	Circularly

TABLE 2

RESPONSE TO FLASHLIGHT

RECORD OF 18 INFANTS FROM 3 TO 12 WEEKS

12		1	1	16
11		1	1	16
10		5	1	12
9		3	1	14
8		1	2	15
7		4	2	12
6		4	3	11
5		4	1	13
4		2	3	13
3		1	4	13
2	Tests Not Given Regularly for			
1	First Two Weeks			
	No Response	Averts	Delayed	Prompt
		Eyes	Closing	Closing

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inches in diameter attached to a short string). Holding the ring by the free end of the string, bring the ring slowly within the baby's line of vision to a point about six inches above its chest and allow the ring to dangle but not twirl for about 30 seconds. Credit if the baby makes a definite attempt to reach the ring or at least makes vigorous movements of hands or legs.

12. Closes Fingers on Ring (a rattle may be substituted for ring). Bring ring in contact with the palmer tip of baby's fingers. Credit if child opens hands at contact with ring within three seconds. Further credit if child closes hand about the ring with thumb opposing fingers.

13. Paper on Face (a 10-inch square of transparent cellophane paper). Place the paper on the baby's face and allow it to remain there for 10 seconds. Credit is given if child sticks out tongue, turns head to side or strikes paper. No credit for crying or for not reacting.

14. Crumpled Paper. At close of test 13 remove cellophane paper and quickly crumple paper about three inches from the baby's ear. Credit if child shows startle reaction.

15. Pain Stimulation (ordinary blood sampling instrument). Adjust the instrument so that it will penetrate both layers of the baby's skin. Place the instrument against the forefinger and release the spring. Credit if there is a definite withdrawal to pain stimulus.

16. Music Box (a toy music box which plays a short tune by turning a crank). Hold the music box about four inches from the baby's right ear and play the entire melody at the correct tempo. Repeat for the left ear. Credit if there is a noticeable diminution or cessation of activity to the sound of the music either time it is played.

17. Bell-ringing (an electric doorbell placed in a box 3x4x10 inches with a one and one-half volt dry battery and a push button). Place the bell five inches back of and five inches above the baby's head without attracting its attention to the bell. Ring the bell once giving a loud, clear tone for slightly over one second. Credit if the child blinks, distorts mouth, wrinkles forehead, starts, or cries.

18. Restraint of Arms. Whenever the baby is engaged in crying or in waving its arms or legs press its two arms closely and firmly in extended position to its sides for five seconds. Credit if the child makes vigorous reactions against restraint.

19. Standing Position. With the baby facing the examiner, the examiner lifts it with a well distributed grasp under each ampulla and lowers it to a standing position, allowing the soles of the feet to contact the bed. If the child manifests any extension of the legs upon contact with the bed, release its support gradu-

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ally to determine how much weight it will support. Credit if child shows definite signs of partial support of weight.

20. Pulled Toward Sitting Position. With the baby lying in a supine position take hold of its hands and after two or three gentle pulls exert a gentle but firm pull until the baby is raised to a 45 degree angle. Care must be exercised not to continue the pull if head lag is complete. Credit if there is no noticeable head lag, i.e., if head is raised with the body.

21. Sitting Position. Continue to pull baby to sitting position if there is no serious head lag in previous test. Credit if child holds its head erect for two or three seconds unsupported.

22. Rearing Head from Prone Position. Place baby in prone position and adjust the arms so that they are close to the sides of the body and the elbows bent with hands near the face. Note whether the child raises its head from the blanket. Credit is given if head is raised from blanket (zone 1). Additional credit is given if the head is raised between 45 and 90 degrees (zone 2). Further credit is given if the head is lifted more than 90 degrees and the arms help support its weight (zone 3).

23. Attends to Examiner. The examiner bends over within about 12 inches of the child's face and looks at it. Credit is given if the child gazes into the examiner's eyes for at least two seconds.

24. Listens to Voice. The examiner recites a poem such as "Mary had a Little Lamb" in a normal voice but with much inflection and expression. Credit if child gives clear evidence of listening. Further credit is given if the child babbles or "talks back."

25. Follow number 24 with a sudden change of voice, speaking with a growl. Credit if child winces, blinks, suddenly moves about, distorts mouth, or cries.

26. Laughs Aloud. Play with child and note any vocalization during any part of the testing. Credit is given if at any time the child laughs out loud.

27. Imitates Facial Movements. With the experimenter's face close to the baby's eyes purse lips then broaden them several times. Credit if the child makes any attempt to "imitate" these movements.

28. Follows Moving Person. While the baby is lying supine, the experimenter moves around in easy view of child. Credit if the child follows experimenter with its eyes.

29. Makes Searching Head Movements. Experimenter hidden from the baby shakes a rattle 18 inches from child, but out of its field of vision. Credit is given if child turns head even if the glance remains straight ahead.

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30. Moves Head in Escape. The experimenter cleans child's nose with wad of cotton. Credit is given if child turns head or makes definite escape movements.

31. Changes Reaction to Repeated Auditory Stimulus (frog sounder). Click the sounder continuously for 15 seconds. Repeat for a total of six trials with 30 second intervals between. Credit if the child starts at the first series but becomes negatively adapted before the series is completed.

32. Changes Expression Upon Seeing Mask (a rabbit's head mask). The experimenter smiles at the baby for 30 seconds and then puts the mask on. Credit is given if the child visibly changes expression upon seeing the mask.

One important precaution that has too often been neglected in the literature and no doubt in experimental technique, should be mentioned concerning the administration of tests to infants. It is generally recognized that rapport is necessary in giving tests to adults. While it is not to be gained in the same way, rapport is none the less important in giving tests to babies. Tests should be administered from about 20 minutes to one hour after regular feedings. The child should be dry and awake - it may be aroused if necessary - and should not be crying. If persistent crying occurs during the testing the tests should be discontinued and continued later.

In addition to the problem of the construction, giving and scoring of the tests, there remain the validation and standardization of norms. Four methods have already been set forth for validating test items as well as the whole battery of tests. The one of these that is now being investigated is age progression. In order to study age progression a test such as that presented in Table 1 was constructed for each test item. This table shows a regular progression from the simple to the more difficult parts of the test. In another test (see Table 2) there was little or no progress with age. While progress is not necessarily evidence of growing mentality, as is shown by the fact that physical growth shows progress but is not highly correlated with intelligence, there is much more likelihood that increased adaptability to a test situation is evidence of mental growth.

Note is also taken of the regularity of success or failure on a test. While this is related to the first criterion it is somewhat different. Better test items are those in which there was consistent success after the first.

Variability on a test is shown in Table 1, for example, for the sixth week. One infant only fixated the tape, three followed horizontally, two vertically, and five circularly.

The fourth criterion of validity will have to be deferred

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until the infants are old enough to be tested by other tests such as those of Cattell and later by the Stanford Revision of the Binet. All the children who have been placed in the Chicago area and whose foster parents will cooperate are being tested at six months, one year, two years, three years, and possibly longer. An insufficient number of infants have been tested to date to justify the presentation of correlations, but a distinct relationship is already apparent with Cattell scores for six months and one year.

Upon the bases of the preceding methods of validation and the age at which items of the test were passed by approximately 75 per cent of the infants, a tentative battery of tests was assembled for ages 4 weeks, 8 weeks, and 12 weeks. Some items from the original battery were eliminated, many others were separated into several parts, and a few new tests were added. The following list shows the items in each battery. There is some overlapping of items in the three batteries.

4 weeks: first 11 items are given with child in supine position
(necessary apparatus indicated in parentheses)

1. Listens to Voice
2. Focuses on Object (metal tape)
3. Follows Tape Horizontally (metal tape)
4. Blinks or Averts Eyes (flashlight)
5. Closes Eyelids at Touch
6. Moves Abdomen at Touch of Alcohol (alcohol and applicator)
7. Reacts to Pain Stimulus (blood-sample instrument)
8. Opens Hands at Touch of Rattle (rattle or ring)
9. Closes Fingers about Rattle (rattle)
10. Diminishes or Ceases Activity at Sound of Music (music box)
11. Startles at Loud Sound (door bell)
12. Lifts Head to Zone 1
13. Lifts Head to Zone 2
14. Compensates Head When Pulled to Sitting Position
15. Holds Head Erect Momentarily

8 weeks: first 15 items are given with child in supine position

1. Responds to Adult's Glance
2. Listens to Voice
3. Babbles
4. Follows Moving Person

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5. Focuses on Object (metal tape)
6. Follows Tape Horizontally (metal tape)
7. Follows Tape Vertically (metal tape)
8. Follows Tape circularly (metal tape)
9. Holds Ring with Thumb Assisting (embroidery ring)
10. Makes Searching Head Movements (rattle)
11. Investigates Paper on Face (cellophane paper)
12. Reacts to Crumpling of Paper (cellophane paper)
13. Moves Head in Flight Movement (cotton applicator)
14. Reacts to Ringing of Bell (door bell)
15. Reacts to Changing Tone of Voice
16. Lifts Head to Zone 2
17. Lifts Head to Zone 3
18. Compensates Head When Pulled to Sitting Position
19. Holds Head Erect

12 weeks: first 11 items given in supine position; items
14, 15, 16, and 18 in sitting position

1. Anticipates Feeding
2. Returns Glance with Smiling or Cooing
3. Imitates Facial Movements
4. Follows Tape Circularly (metal tape)
5. Increases Activity at Dangling Ring (embroidery ring)
6. Moves Head in Flight Movement (cotton applicator)
7. Reacts to Disappearance of Face
8. Looks for Source of Sound (rattle)
9. Changes Reaction to Repeated Auditory Stimulus (frog
sounder)
10. Changes Expression upon Seeing Mask (rabbit's head
mask)
11. Feels an Object (cardboard)
12. Lifts Head to Zone 2
13. Lifts Head to Zone 3
14. Regards Cube (red cube)
15. Regards Spoon (spoon)
16. Discriminates Milk and Water (two bottles)
17. Inspects Fingers
18. Holds Head Steady
19. Laughs Aloud

This new series of tests was given to 37 babies four weeks of age, 38 eight weeks of age, and 19 twelve weeks of age. In giving these tests both the four and eight week tests were given to the four week babies, the eight and twelve week tests to the eight week babies, but only the twelve week tests to the twelve

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week babies.

Table 3 gives the mean percentage of items in each battery passed at each age. Assuming the babies tested to be a normal group - and the Cattell scores indicate that this is true - these may be considered as very tentative norms for these ages.

TABLE 3

MEAN PERCENTILES OF TEST PASSED AT EACH AGE

Age of Child When Tested	4 Wks.		8 Wks.		12 Wks.
Test Battery Used	4 Wk.	8 Wk.	8 Wk.	12 Wk.	12 Wk.
Mean Percentile Score	67	42	66	38	54

Twenty-four infants were tested at four weeks and again at eight weeks. As described above, two batteries of tests were used at each age. The correlation between the four weeks and the eight weeks battery when given at the same time was .57. When corrected by the Spearman-Brown formula this correlation was increased to .72. This may be considered as a rough reliability coefficient. The correlation between the eight and twelve weeks battery when given at the same time was .66 and when corrected became .80. These, of course, were small groups of children and the probable errors were .07 and .05 respectively.

The correlation between both batteries given at four weeks and the batteries given at eight weeks was .47. While this is not a high correlation it must be recalled that the infants had doubled their ages during this interval. It remains to be determined whether Bayley's contention that there is little correlation between early test scores on infant tests and later test scores holds true in this investigation. It might not hold true if different tests were used as is the case in the present study.

Summary and Conclusions

As further study continues for improving the tests of infant mentality two different methods of test construction are being compared. In one form of the tests we are combining the

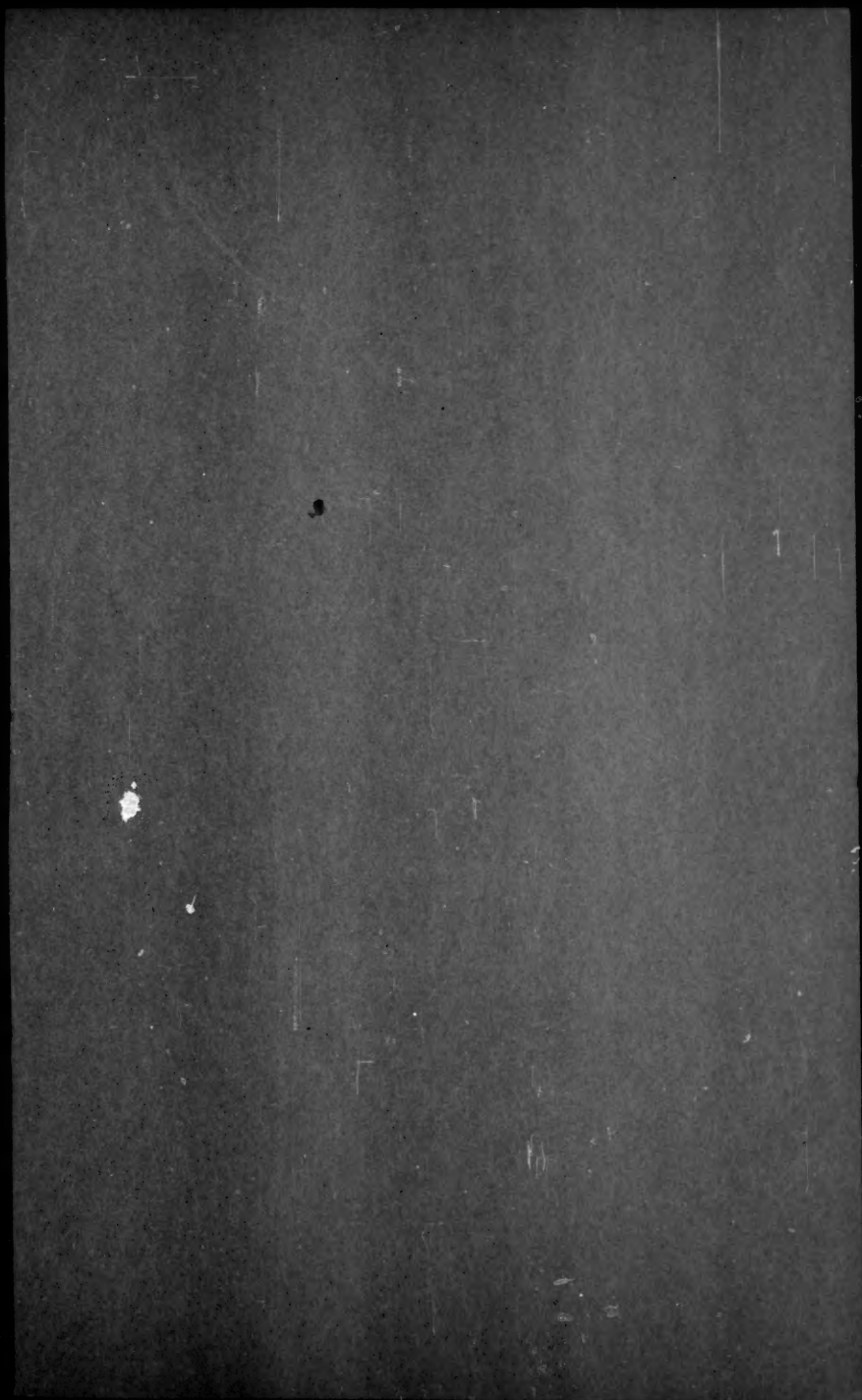
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items into batteries for different ages as in the Binet tests and as we did in the latter part of the study reported here. In another study, which is being conducted by Professor and Mrs. Morgan, the test items are being combined into one test battery and developmental norms are being established. As yet it is impossible to determine which method will prove the most useful.

But whatever method of test construction is finally adopted, the evidence thus far collected strongly suggests that it will be possible to construct a test or a collection of tests that will possess considerable validity and reliability. However, it is likely that, because of the variability of the responses of a baby, any test will have to be administered more than once in order to assure a representative sample of the baby's performance. If a sufficient number of good test items can be administered on several occasions our results suggest that a test of much practical value is possible.

The authors during the time when the tests described here were being given were able to determine low grade ability in three babies under three months of age, the diagnosis being later verified by other standardized tests of intelligence. If infant tests can do no more than separate those with limited capacity from the normals they will be of inestimable value in helping with the placement of babies for adoption, and we will have accomplished one more step in the construction of accurate measures of mental development for that period of life in which its rate is relatively the most rapid.





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